

**Norstar-PLUS
Compact ICS 1.0
Installer Guide**

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Regulations

Radio-frequency interference



Equipment generates RF energy.

This equipment generates, uses, and can radiate radio-frequency energy. If not installed and used in accordance with the installation manual, it may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Part 15 of the FCC Rules and with Canadian Radio Interference Regulation SOR/88-475, which are designed to provide reasonable protection against such interference when used in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user, at his or her own expense, will be required to take whatever measures may be required to correct the interference.

Telecommunication registration

Norstar equipment meets all applicable requirements of both Industry Canada CS-03 and US Federal Commission FCC Part 68 and has been registered under files Industry Canada 332-5980 A and FCC AB6CAN-20705-KF-E (key system), AB6CAN-20706-MF-E (hybrid system), and AB6CAN-23740-PF-E (PBX system). Connection of the Norstar key telephone system to the nationwide telecommunications network is made through a standard network interface jack that you can order from your local telecommunications company. This type of customer-provided equipment cannot be used on party lines or coin lines.

NOTICE: The Industry Canada label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational and safety requirements. Industry Canada does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment. Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

CAUTION: Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

Ringer Equivalence Number and Load Number

The FCC and Industry Canada Registration information, on the front of the integrated communication system (ICS), includes the ringer equivalence number (REN) and load number (LN). These numbers show the electrical load that the Norstar ICS requires from a telephone line. If the ICS requires more electrical current than the telephone company's central office equipment can provide, telephones may not ring and you may have difficulty dialing telephone numbers.

In most areas, the total load on a line is allowed to be 5.0 REN or 100 LN. Call the local telecommunications company to find out the total REN or LN allowed for your telephone line.

Hearing-aid compatibility

Norstar telephones are hearing-aid compatible, as defined in Section 68.316 of Part 68 FCC Rules.

Electromagnetic compatibility

Norstar Compact ICS equipment meets all FCC Part 15, Class A radiated and conducted emissions requirements.

Norstar Compact ICS does not exceed the Class A limits for radiated and conducted emissions from digital apparatus as set out in the Radio Interference Regulations of Industry Canada.

Safety

Norstar Compact ICS equipment meets all applicable requirements of both the Canadian Standards Association C22.2 No. 225-M90 and US Underwriter's Laboratory UL-1459 Second Edition, and has been registered under file CSA LR58855.

Telephone company registration

It is usually not necessary to call the telecommunications company with information on the equipment before connecting the Norstar ICS to the telephone network. If the telecommunications company requires this information, provide the following:

- telephone number(s) to which the ICS will be connected
- FCC registration number (on label affixed to ICS)
- ringer equivalence number (REN)
- universal service order code (USOC)
- service order code (SOC)
- facility interface code (FIC)

Trunk Cartridge	REN	LN	USOC	SOC	FIC
Loop Start/Disconnect Supervision (LS/DS) - NT7B75GA-93	AC 1.5B DC 0.3	8	RJ21X	9.0F	02LS2
Call Information (CI) - NT5B41GA-93	AC 1.5B DC 0.3	8	RJ21X	9.0F	02LS2

Use of a music source

In accordance with U.S. Copyright Law, a license may be required from the American Society of Composers, Authors and Publishers, or similar organization if Radio or TV broadcasts are transmitted through the Music On Hold or Background Music features of this telecommunication system.

Northern Telecom Inc. hereby disclaims any liability arising out of the failure to obtain such a license.

Rights of the telecommunications company

If the Norstar Compact ICS system is causing harm to the telephone network, the telecommunications company may discontinue service temporarily. If possible, the telecommunications company will notify you in advance. If advance notice is not practical, the user will be notified as soon as possible. The user will be given the opportunity to correct the situation and informed of the right to file a complaint to the FCC.

The telecommunications company may make changes in its facilities, equipment, operations or procedures that could affect the proper functioning of the system. If this happens, the telecommunications company will give you advance notice in order for you to make any necessary modifications to maintain uninterrupted service.

Repairs

In the event of equipment malfunction, all repairs to certified equipment will be performed by Northern Telecom Inc. or by one of its authorized dealers.

To return equipment for repair in the U.S., call 1-800-321-2649. You will receive a return advice number (RA#) to include with your returned equipment.

Address of repair facilities

USA

Northern Telecom Inc.
Nashville Repair Distribution Center
640 Massman Drive
Nashville, TN
37210
RA# _____

Canada

Northern Telecom Canada Ltd.
30 Norelco Drive
Weston, Ontario M9L 2X6
Attn: Repair Department

What's new with Norstar

New equipment

The Norstar Compact ICS system has new equipment with improved performance to meet changing telecommunication needs. Compact ICS starts at 4x8 and supports up to 8 lines and 24 Norstar telephones and peripherals when it is fully expanded.

Trunk Cartridge slots

The Norstar Compact ICS has two slots that can accept any configuration of Loop Start/Disconnect Supervision (LS/DS) Analog Trunk Cartridges (ATC) and Call Information (CI) Trunk Cartridges. This arrangement allows the system to be expanded as needed. Trunk Cartridges for the Compact ICS can also be used with the 0x32 ICS.

Feature Cartridge

The Feature Cartridge and slot now have a slim, compact design. The release number of the software can be easily read without removing the cartridge.

The cartridge is available in two formats:

- a basic cartridge which supports up to 4 trunks and 8 station ports. By using software keys, it can be upgraded to support 8 trunks, the 16 built-in station ports, and 24 station ports using the Expansion Cartridge.
- an expanded cartridge which supports up to 8 trunks and 16 station ports, and 24 station ports using the Expansion Cartridge

The 4x8 is upgraded using a set of software keys supplied by Northern Telecom – you do not need to install a new cartridge.

Expansion cartridge

A third slot on the Norstar Compact ICS houses an optional 8-port expansion cartridge. This provides ports for eight additional Norstar telephones.

Internal Analog Terminal Adapter (I-ATA)

The Norstar Compact ICS now has a built-in analog terminal adapter (I-ATA).

The I-ATA is designed to be compatible with commercial fax and modem equipment. The Compact ICS has been shown to support data transmission rates of up to and including 28.8 kbps.

Maximum data transmission rate is subject to the quality of the end-to-end channel and cannot be guaranteed.

The I-ATA is designed for in-building use only and not as an off-premises extension (OPX).

New programming features

Operations, administration and maintenance programming for Norstar Compact ICS has been redesigned to make both installation and adds, moves, and changes on the system easier. The reorganization reflects the priorities of installers, customer service representatives and system coordinators.

Because programming is now done only on sets with a two-line display, users will have more flexibility and power when installing and making changes to the Norstar system. A telephone with a single-line display cannot be used for programming.

New levels of access

The password determines the level of access that the user sees when programming the Norstar system. A password for installers shows all the programming. There are separate passwords for two types of system coordinator: the coordinator who needs to perform day-to-day tasks to keep up with changes in the workplace, and the system coordinator "plus" who needs access to advanced settings. There is also a basic password for the user who performs only the most common programming tasks.

Programming is no longer divided into "Configuration" and "Administration".

More “one-stop” programming

With the addition of new programming headings and sub-headings, settings for features have been grouped together in one place.

There are also parts of programming which have been repeated under one or more headings to help make programming easier. For example, you can program all the restriction filters that are available under both Lines and Terminals&Sets because those settings are used in both places.

Telephone-to-telephone programming of personalized features

Autodialers, user speed dial codes, display contrast and other programming that is particular to one telephone or user can now be seen or changed in a regular programming session or using a feature code. Instead of walking over to where the telephone is located, all the programming usually done by the user can be done under the heading User preferences.

You can also program User preferences using a feature code.

Copying programming to a range of telephones

The user can now copy programming from a single telephone to a range of telephones or all the telephones on a system. Copying can be done for a particular sub-heading of programming or to duplicate all or a portion of programming for a set. See the Programming chapter for more information.

Built-in remote administration

The Norstar Compact ICS has a built-in device that can be used for remote administration. Remote administration is an optional feature that must be purchased. It is enabled using software keys supplied by Northern Telecom.

New features

Auto Attendant

Norstar Compact ICS comes with a built-in auto attendant feature that can answer calls and put them on hold. It can also give callers the ability to reach a particular telephone by dialing an internal number, or select a destination from a pre-recorded menu (CCR). The Auto Attendant features "business open" and "business closed" options. For more information about the Auto Attendant, see the *System Coordinator Guide*.

Automatic Daylight Saving Time

When this feature is turned on, your system will automatically switch between standard time and daylight savings time. Daylight time appears under System Programming in Feature Settings.

Station set test

Physical problems with a Norstar telephone can now be verified with a test activated by a feature code (). For more information, see the *System Coordinator Guide*.

Bit error rate test (BERT)

Test the transmission quality of the link between the ICS and a telephone. BERT appears as a new option under Maintenance in Loopback tests.

Enhanced features

Ringing service

Ring Groups have been added to simplify programming for ringing service. You can add extended ringing sets to a ring group, which is then used by one of six Schedules. Up to 20 Ring Groups are available for each Schedule.

Expanded Routing Service

Norstar's Automatic Route Selection allows you to program 500 destination codes for Routing Service and 999 routes.

To make programming routes easier, a digit absorption feature has been added. By choosing which digits of the destination code are dialed out by the system, many routes will no longer need to have DialOut digits.

Page Tone

The tone preceding a page announcement up to now was always on. Now it is possible to turn the Page tone off for all users. This may be convenient if the office environment is often busy with page announcements.

Page Timeout

You can now specify the amount of time required before a page announcement is automatically shut down. This gives users the ability to allow longer page announcements. It also minimizes the length of time the feature is tied up at one telephone or left on by accident. This feature enhancement appears under System Programming in Feature Settings.

Automatic Call Information (Caller ID or Call Display)

Information about incoming external calls can now appear on any telephone with a ringing line appearance. The call information does not automatically appear when the telephone is part of a CCR group, has an Answer DN, or belongs to a Ring group activated by Ringing Service. Call information is still available for these calls by pressing

Feature .

North American numbering plan

To reflect the new North American numbering scheme, the default restriction filters have been updated. Filter 01 has combined exceptions 003 and 004 into a single exception 003 (now referred to as an override) to allow long distance directory assistance calls. Area codes can now have any digit as a second digit.

Call Park

The Norstar system now assigns Call Park codes in sequence, from the lowest to the highest, until all the codes have been used. This round-robin approach means that a greater variety of codes will be used, which will make it easier for a call to reach the right person when more than one incoming call is parked.

Set programming confirmation

When you have completed a programming session, some of the changes may have not taken effect yet. When this happens, you will see an UPDATE display button when you leave programming. Pressing the button will show you how many telephones have not been updated yet because the system is busy with other programming or the telephone is in use.

Norstar in a network

In addition to public network connections, Norstar Compact ICS can be integrated into an existing private network.

The big picture

Norstar uses enhanced routing to join other Norstar or customer equipment in a private network. Authorized users can also access central office lines and Norstar features from outside the Norstar system.

Internal callers using the Norstar Compact ICS system can

- call directly to a specific Norstar telephone
- select an outgoing central office line to access the public network
- use all of the Norstar features

Callers in the public network can:

- call into the Norstar Compact ICS system and select an outgoing central office line to access the public network
- call into the Norstar Compact ICS system and use remote features

Norstar as an OPX

Norstar Compact ICS can be used as an off-premise extension (OPX) from a PBX. In order to support this application, the OPX lines must be set up not to exceed 8 dB total loop loss from the serving central office to the connection point at the Norstar ICS.

Trunks

Trunks are external lines that provide the physical connection between a Norstar system and other systems in a private or public network. Trunks are numbered 001 to 008. Norstar Compact ICS supports loop start trunks, which handle incoming and outgoing calls between Norstar and the public network.

Telephones can be configured to have an appearance of any type of trunk.

Loop start trunks

Loop start trunks provide incoming and outgoing access to the public network. Loop start trunks can be configured as manual-answer or auto-answer. The answer mode determines how the system handles incoming calls.

When a call comes in on a manual-answer loop start trunk, it alerts at all telephones with that line appearance.

When a call comes in on an auto-answer loop start trunk that is configured to answer with direct inward system access (DISA), the caller hears a stuttered dial tone. They must enter a six-digit Class of Service (COS) password from a dual tone multifrequency (DTMF) telephone to access system dial tone. Once the caller has system dial tone, they can then enter a line pool access code or a remote feature code.

By default, auto answer loop start trunks are configured to answer with DISA, and are used to provide controlled access to Norstar system resources.

When a call comes in on an auto-answer loop start trunk that is not configured to answer with DISA, the caller hears system dial tone. They can then enter a DISA DN (the number that will call for a COS password), a line pool access code, or a remote feature code from a DTMF telephone.

To place an outgoing call, a loop start line can be selected by pressing a line button on the telephone, dialing a line pool access code, or pressing a memory button that has been programmed with a line pool access code.



Tip - *Loop start signaling is supported by Loop Start /Disconnect Supervision (LS/DS) Analog Trunk Cartridges and Call Information (CI) Trunk Cartridges. Each LS/DS Analog Trunk Cartridge or CI Trunk Cartridge can provide four loop start trunks. To configure the loop start trunks as auto-answer, the trunks must have disconnect supervision enabled. The central office must provide far end disconnect supervision.*

You may configure a loop start trunk as the prime line for a Norstar telephone.

The capabilities available to a remote caller are determined by the remote restrictions and remote package assigned to a line, or by the set restrictions, line restrictions and remote package assigned to the COS password.

Remote system access

The remote access allows callers elsewhere on the public network to access a Norstar system by dialing directly without going through an attendant. Once in the system, the remote user can use some of the system's resources. The remote access must be enabled in programming before callers can use it.

Norstar Compact ICS systems support remote system access on auto-answer loop start trunks and can require the remote caller to enter a password for direct inward system access (DISA).

The system resources (dialing capabilities, line pool access and feature access) that a remote user may access depends on the Class of Service (COS) assigned to them. See the description of COS on page 17 for more details.

To use features on a Norstar system remotely, press followed by the feature code. Even if you are calling from another Norstar system, press instead of .

Remote access on loop start trunks

Loop start trunks provide remote access to Norstar from the public network and must be configured to be auto-answer (in Lines programming) to provide remote system access.

A loop start trunk must have disconnect supervision enabled if it is to operate in auto-answer mode.

When a caller dials into the system on a line that has auto-answer, the system answers with system dial tone and no COS password is required. In this case, control over the system capabilities available to the caller is provided only by the restriction filters assigned to the line.

When a caller dials in on a line that has auto-answer with DISA, the system answers with stuttered dial tone. This is the prompt to enter a COS password which determines which system capabilities are available to the caller.

Networking features

Security

Programming provides several ways of protecting your Norstar system from unauthorized access or use.

Class of Service

Class of Service (COS) refers to the capabilities that Norstar provides to users who access the system from the public or private network. The COS includes:

- filters that restrict dialing on the line
- an access package, which defines the set of line pools that may be accessed and whether or not the user has access to the paging feature

The COS that is applied to an incoming remote access call is determined by

- the filters that you apply to the incoming trunk
- the COS password that the caller used to gain access to the Norstar system

In cases where DISA is not automatically applied to incoming calls, the remote caller can change the COS by dialing the DISA DN and entering a COS password.

To program COS passwords, see COS pswds under Passwords (page 131) in this guide.

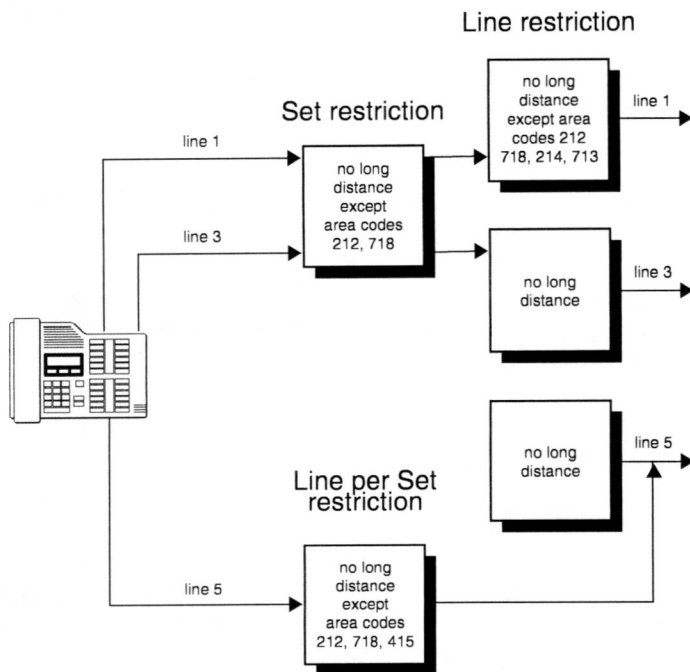
Restriction filters

Restriction filters can be used to restrict the numbers that may be dialed on any external line within the Norstar system. Up to 100 restriction filters can be created for the system. A restriction filter consists of up to 48 restrictions and their associated overrides.

To restrict dialing within the system, you can apply restriction filters to

- outgoing external lines (as line restrictions)
- telephones (as set restrictions)
- external lines on specific telephones (as line/set restrictions)

Restriction filters can also be specified in Restrictions service for times when the system is operating according to a schedule. Refer to the description of Services in this guide (page 111) for more details.

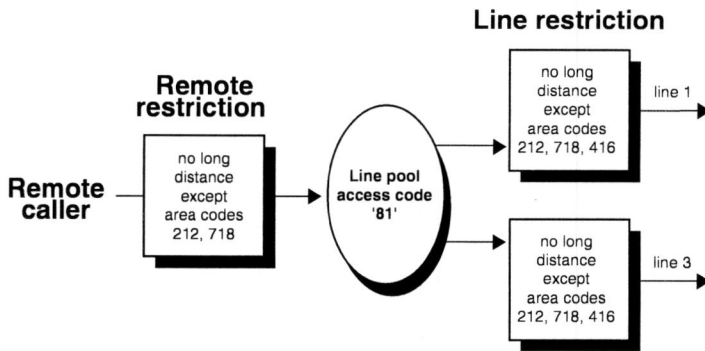


Dialed digits must pass both the line restrictions and the set restrictions. The line per set (line/set) restriction takes priority over the line restriction and set restriction.

In this diagram, a caller using line 001 could only dial long-distance numbers to area codes 212 and 718. A caller using line 003 could not dial any long-distance numbers. A caller using line 005 could dial long-distance numbers to area codes 212, 718, and 415.



Tip - *To restrict dialing from outside the system (once a caller gains remote access), apply restriction filters to incoming external lines (as remote restrictions).*



In this case, dialed digits must pass both the remote restriction and the line restriction. A remote caller can override these filters by dialing the DISA DN and entering a COS password.

For restriction filter programming instructions, see Restriction filters (page 91) in this guide.

Direct inward system access (DISA)

To control access from the public network, configure auto-answer trunks to answer with DISA. Remote callers hear a stuttered dial tone and must then enter a COS password that determines what they are allowed to do in the system.

Auto-answer loop start trunks are configured to answer with DISA by default. For DISA programming instructions, see Trunk/Line data under Lines (page 100) in this guide.

Transparent dialing plan

The Norstar system has a routing feature that allows you to set up a transparent or coordinated dialing plan with other systems in the public network. The goal is to have a network-wide dialing plan where all telephone numbers are unique and of a uniform length.

Dialing plans are typically used with a network of systems with a three to seven digit dialing access between them.

Any programming for routing should be carefully planned using the tables supplied with the *Programming Record*. The settings for routing and destination codes are fully explained under Routing service (page 115) in the Programming section of this guide. This section deals with applying the programming in network situations.

Dialing plan using public lines

The examples in the illustrations show the *Programming Record* for the Toronto system in a network of three offices: Toronto, Halifax and Vancouver. Without routing, a Norstar user in Toronto would have to select a line pool and dial 1-902-585-3027 to reach extension 27 in Halifax (902). By creating a destination code of 30 and creating a route that uses the proper line pool and DialOut, the user simply dials 3027. The same feature is available for Vancouver (604).

When you are calling a Compact ICS 1.0, you cannot reach an individual extension directly from incoming lines. Outside and network callers use Custom Call Routing (CCR) to reach individual extensions.

In the DialOut, P stands for pause, a host system signalling option. Press to insert a 1.5 second pause in the dialing string. See page 125 or the *System Coordinator Guide* for information about other signals.

Page 13

Routing Service (Services: Routing Service)

Route # (001-999)	DialOut (if required) (max. 24 digits or characters)	Use Pool
100	1-P-902-585	A B C
101	1-P-902-585	A B C
102	1-P-604-645	A B C
103	1-P-604-645	A B C
		A B C

Routing service (continued)

Dest code (Services: Routing service: Dest codes)

Service Schedule	Normal		Sched 1		Sched 2		Sched 3	
Sched name (max. 7 char.)	Normal		Night		Evening		Lunch	
DestCode (max. 7 digits)	Use route (001-999)	Absorb Length	Use route (001-999)	Absorb Length	Use route (001-999)	Absorb Length	Use route (001-999)	Absorb Length
30	999 100	All 0	999	All	999	All	999	All
31	999	All 0	999	All	999	All	999	All
32	999	All 0	999	All	999	All	999	All
33	999	All 0	999	All	999	All	999	All

Destination code numbering in a network

Because the system checks the initial digits of a call against the routing tables, each type of internal or external call must begin with a distinct digit. The following table gives a sample plan for how initial digits are assigned in a network of systems with three-digit intercom numbers.

Digit	Use
0	Direct-Dial
1	Long distance calls
2	Intercom calls
3	Intercom calls
4	Coordinated dialing plan
5	Unused
6	Unused
7	External access code
8	Call Park prefix
9	Local calls

In the example, 4 is used as the initial digit for the coordinated dialing plan, but 5 or 6 could also be used for this purpose.



Tip - When programming a button to dial a Network number automatically (autodial), network calls must be treated as external numbers, even though they resemble internal extension numbers.

Routes generally define the path between the Norstar system and another switch in the network, not other individual telephones on that switch.

Planning the installation



Only qualified persons should service system.

The installation and service of this unit is to be performed only by service personnel having appropriate training and experience necessary to be aware of hazards to which they are exposed in performing a task and of measures to minimize the danger to themselves or others.

Planning checklist

- ☐ Verify that you have all the equipment and supplies you need to install the system.
- ☐ Determine the location for the integrated communication system (ICS), telephones, and other equipment.
- ☐ Select the template to be used in System Startup programming. See the Programming chapter.
- ☐ Plan and record system programming details in the *Programming Record*.

Required equipment and supplies

- ☐ integrated communication system (ICS)
- ☐ Feature Cartridge
- ☐ Trunk Cartridge(s) for the ICS
- ☐ Norstar telephones
- ☐ distribution panel(s)

Expansion equipment

- ☐ Expansion Cartridge (eight ports)

The ICS supports up to 24 telephones with the Expansion Cartridge.

Optional equipment

- ☐ station auxiliary power supply (SAPS)

- ☐ Busy Lamp Field (BLF)
- ☐ central answering position (CAP) module
- ☐ analog terminal adapter (ATA)
- ☐ uninterruptible power supply (UPS)
- ☐ emergency telephone
- ☐ other

Equipment for installing the ICS

- ☐ screwdriver
- ☐ pliers
- ☐ connecting tool
- ☐ two 19 mm (3/4 in.) wood screws for the mounting bracket
- ☐ one 32 mm (1-1/4 in.) wood screw for the bottom mounting tab
- ☐ 19 mm (3/4 in.) wood backboard (if necessary)

Location requirements

- ☐ clean, dry, and well-ventilated to allow free airflow
- ☐ minimum clearance of 150 mm (5 in.) above and 100 mm (4 in.) below the ICS
- ☐ the gap between the ICS and the wall should be left completely clear to allow proper heat dissipation
- ☐ temperature between 0°C and 50°C (32°F and 122°F)
- ☐ humidity between 5% and 95%, non-condensing
- ☐ minimum distance of 4 m (13 ft) from equipment such as photocopiers, electrical motors and other equipment that can produce electromagnetic, radio-frequency, and electrostatic interference

Electrical requirements

- ☐ non-switched, unobstructed outlet within 1.5 m (5 ft) of the ICS

- ☐ dedicated 110 V - 120 V ac nominal, 50/60 Hz, 15 A minimum service with a third wire safety ground to provide shock protection and avoid electromagnetic interference

***Risk of electric shock.***

The safety of this product requires connection to an outlet with a third-wire ground. Use only with three-prong power cord and outlet.

The ICS power cord is 1.5 m (5 ft) long. You may connect the ICS to a power bar with a maximum length of 2 meters (6.5 ft), including power bar. The power bar must be approved by an appropriate National Test Body, with a third-wire ground. Do not use an extension cord between the ICS and the power bar, or between the power bar and the electrical outlet.

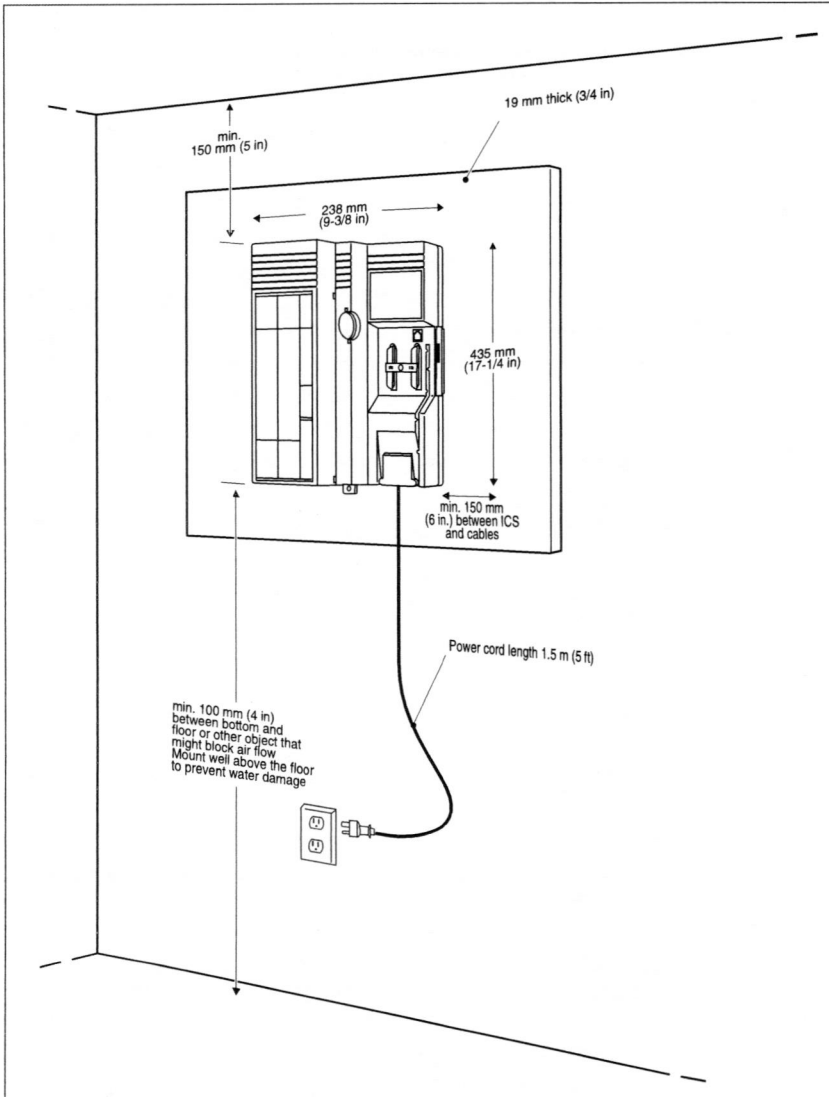
Internal wiring requirements

- ☐ one, two or three twisted-pair cable(s) per telephone
- ☐ dc loop resistance of less than 64 Ω
- ☐ cable length (0.5 mm or 24 AWG) less than 300 m (975 ft)
- ☐ use of a station auxiliary power supply (SAPS) for loops 300 m (975 ft) to 1200 m (3900 ft). The SAPS must be a Class 2 power source that is approved by an appropriate National Test Body.
- ☐ no bridge taps

***Verify lightning protectors.***

Check the lightning protectors at the cable entry point to the building with special attention to the grounding. Report any problems to the telephone company in writing. Norstar telephone wiring is not lightning protected and should therefore not leave the building.

Spacing requirements



Installation



Only qualified persons should service system.

The installation and service of this unit is to be performed only by service personnel having appropriate training and experience necessary to be aware of hazards to which they are exposed in performing a task and of measures to minimize the danger to themselves or other persons.

Electrical shock hazards from the telecommunication network and AC mains are possible with this equipment. To minimize risk to service personnel and users, the ICS must be connected to an outlet with a third-wire ground. In addition, all unused slots must have filler faceplates installed and the system door must be locked in place at the completion of any servicing.

Service personnel must be alert to the possibility of high leakage currents becoming available on metal system surfaces during power line fault events near network lines. Risk points on the ICS are the Feature Cartridge, heatsink and power cord earth ground pin. These leakage currents normally safely flow to Protective Earth ground via the power cord. Therefore, it is mandatory that connection to an earthed outlet is performed first and removed last when cabling to the unit. Specifically, operations requiring the unit to be powered down must have the network connections (central office lines) removed first.

Installation checklist

- ☐ mount the integrated communication system (ICS)
- ☐ install the Feature Cartridge
- ☐ install the Trunk Cartridges and Expansion Cartridge (as required)
- ☐ complete the wiring, but do not connect the central office and station line connectors
- ☐ install filler faceplates (slot covers)
- ☐ install the emergency telephone(s), if required
- ☐ install the Norstar telephones
- ☐ install the optional equipment
- ☐ install the analog telephone(s)
- ☐ power up the system
- ☐ connect the central office and station line connectors
- ☐ install the door

***Avoid electrical shock.***

To avoid electrical shock hazard to personnel, or equipment damage, observe the following precautions when installing telephone equipment:

Always disconnect telecommunication network connections before disconnecting the AC power plug.

Never connect the central office and station line connectors until you have connected the power plug.

Never install telephone wiring during a lightning storm.

Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.

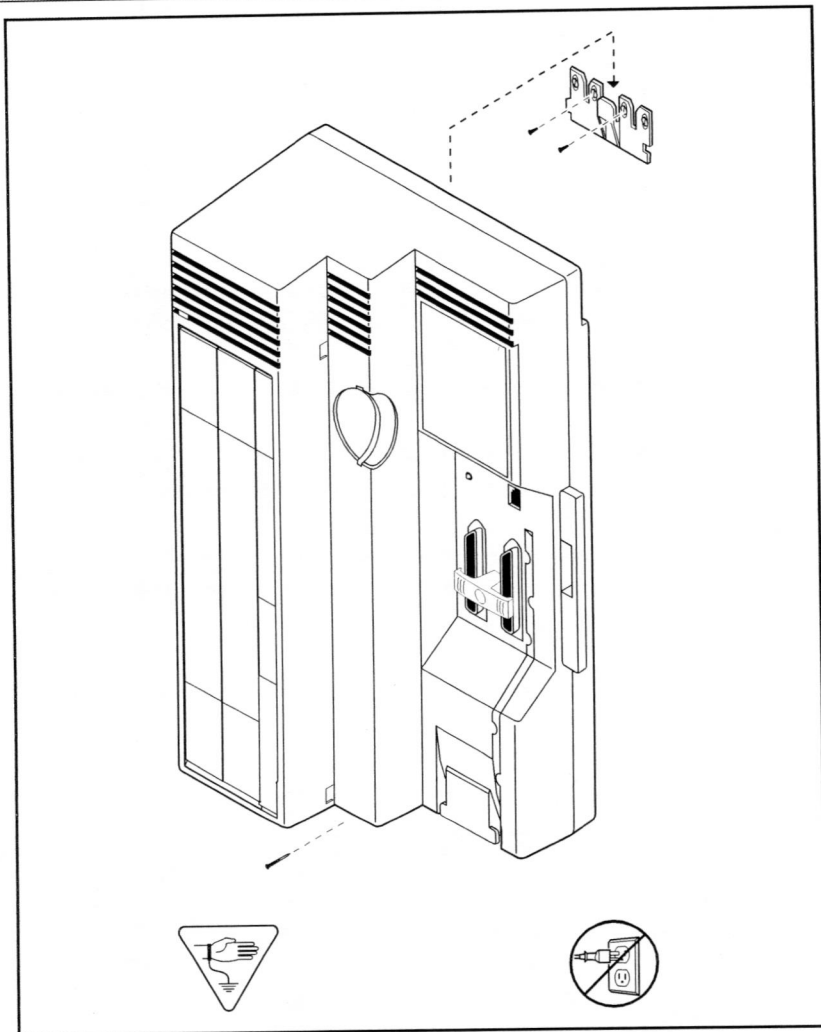
Never touch non-insulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.

Use caution when modifying or installing telephone lines.

***Do not fasten power supply cords.***

To comply with UL1459, do not fasten the ICS power supply cord to any building surface, including the backboard.

Mounting the ICS



Attach brackets to secure surface.

Screw the ICS mounting bracket and ICS to a 19 mm wood backboard secured to a wall and capable of supporting a 20 kg mass. Do not screw brackets directly to drywall. Use the two inner screw holes on the bracket.

Installing the cartridges

The following table shows which cartridges can be installed in the ICS slots.

Cartridge type	Part number	ICS slot
Feature Cartridge (8X16 or 8X24)	A0632925 NT7B64AA	Feature Cartridge Slot
Feature Cartridge (4X8)	A0655987 NT7B64AE	Feature Cartridge Slot
Expansion Cartridge (8 ports)	A0629599 NTBB04GA-93	3
Loop Start/Disconnect Supervision (LS/DS) Analog Trunk Cartridge	A0405799 NT7B75GA-93	1 or 2
Caller Identification (CI) Trunk Cartridge	A0393277 NT5B41GA-93	1 or 2

LS/DS Analog Trunk Cartridges and Caller Identification (CI) Trunk Cartridges both support loop start external lines.



PCB is electrostatic-sensitive.

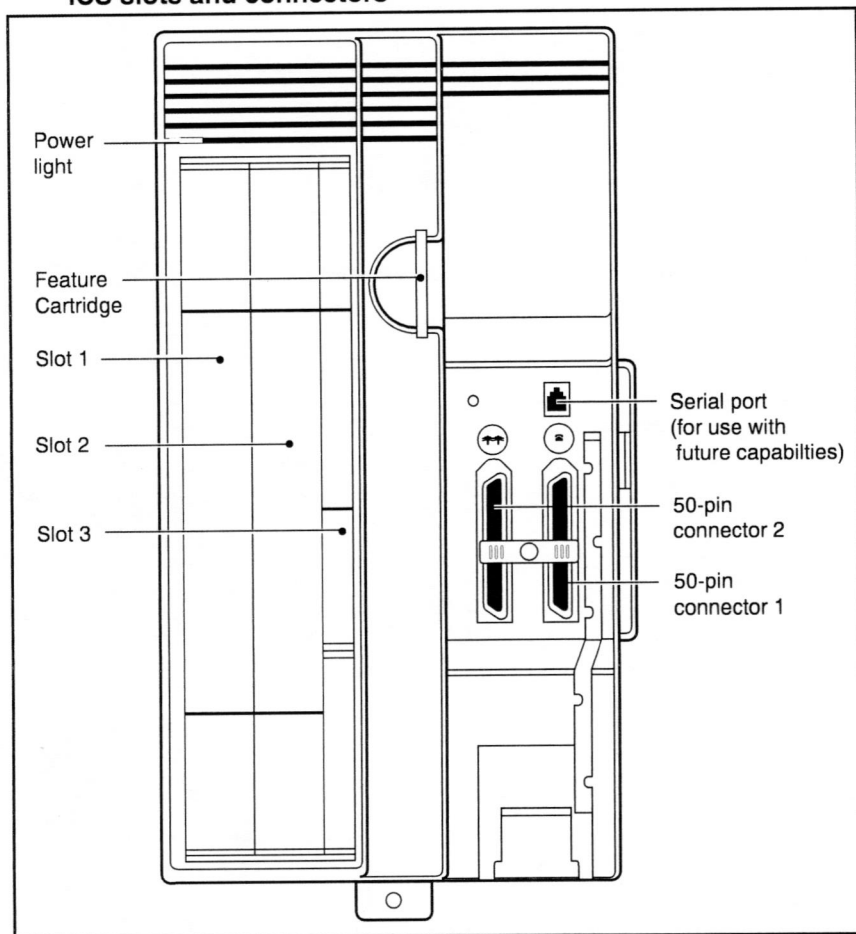
Do not touch the printed circuit board on a cartridge. This is an electrostatic-sensitive device.



Close clips simultaneously.

It is important to center and close the two clips on the cartridge simultaneously, or the cartridge may become misaligned in its slot, or with its connector.

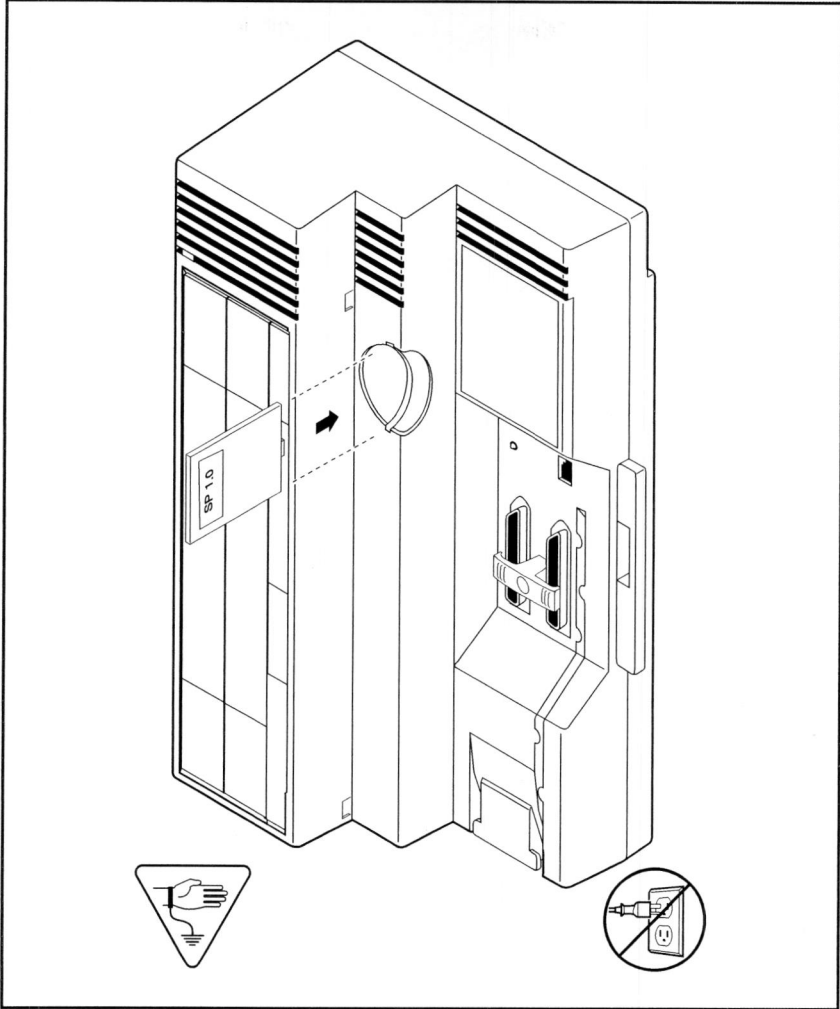
ICS slots and connectors



Removing the door

To remove the door, insert a screwdriver at the tab on the right side of the ICS. Pry the latch open.

Installing the Feature Cartridge

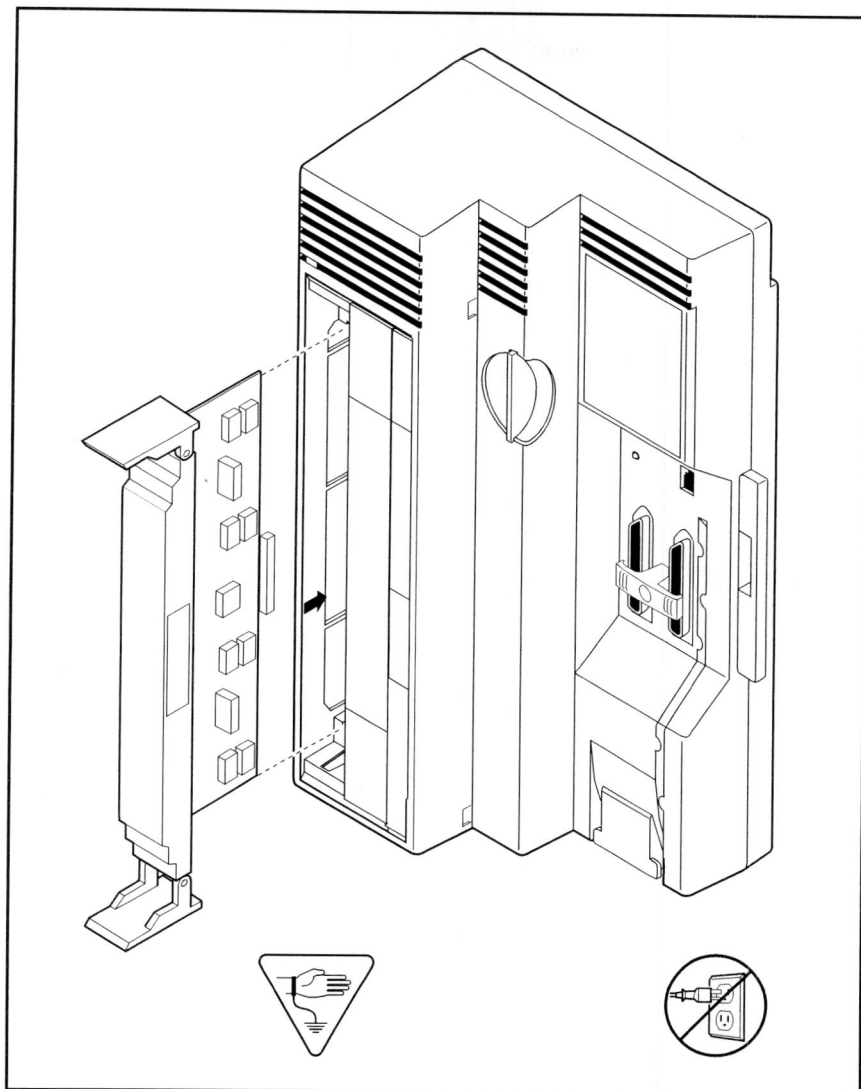


Insert Feature Cartridge one way.

To ensure the connector is properly installed, insert the Feature Cartridge so that the connector is properly aligned in the interior slot and the version label is visible after installation.

Installing Trunk Cartridges

1. Slide the Trunk Cartridge into slot 1, applying equal pressure at the top and bottom. (See illustration on the next page.)
2. Close the cartridge clips at the same time, to keep the cartridge aligned with the connector.
3. If you are installing a second trunk cartridge, remove the filler faceplate from slot 2 and slot 3 (it is one piece), using a screwdriver at the bottom of each slot and prying the bottom edge out.
4. Snap the two parts of the faceplate apart and put back the filler faceplate in slot 3.
5. Insert the second Trunk Cartridge, as described in steps 2 and 3.



Installing the Expansion Cartridge

1. Remove the filler faceplate from slot 3 (and slot 2 if there is no Trunk Cartridge), using a screwdriver to pry the bottom edge(s) out.
2. If required, snap the two parts of the faceplate apart and put back the filler faceplate in slot 2.
3. Slide the Expansion Cartridge into slot 3, applying equal pressure at the top and bottom. (See illustration on the next page.)
4. Close the cartridge clips at the same time, to keep the cartridge aligned with the connector.



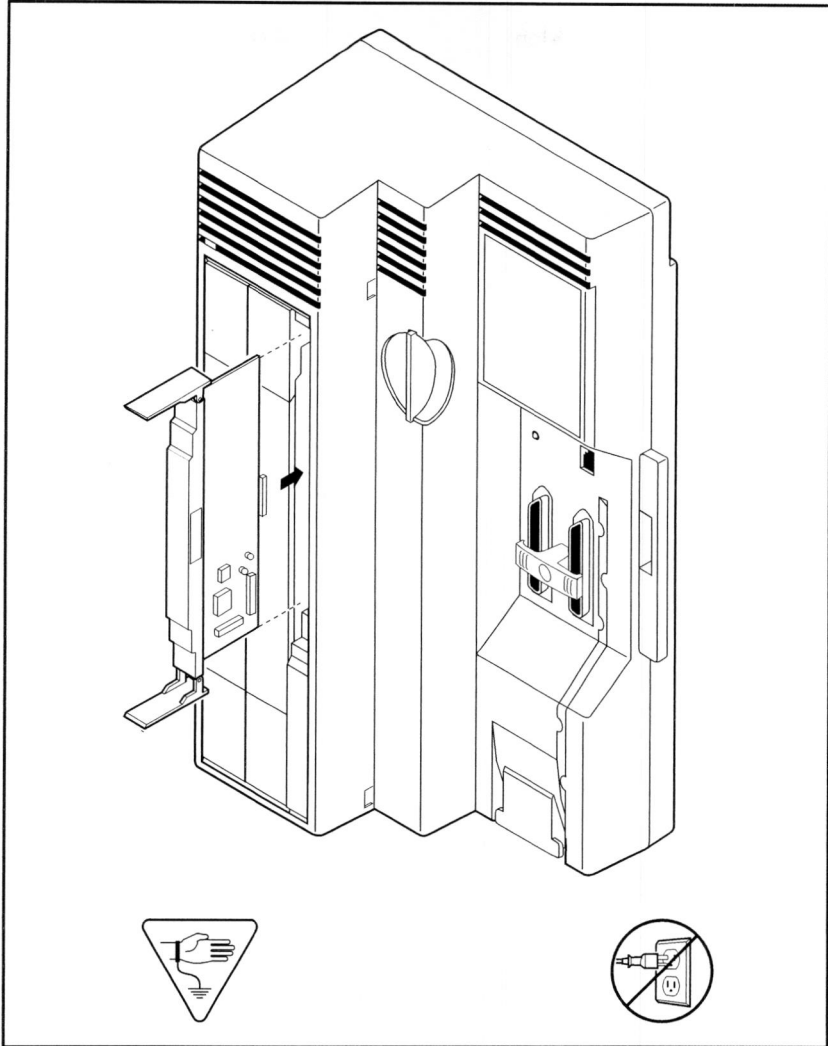
Removing the expansion cartridge will cause a cold restart.

If you downsize the system by removing the expansion cartridge, all the system programming will be lost.



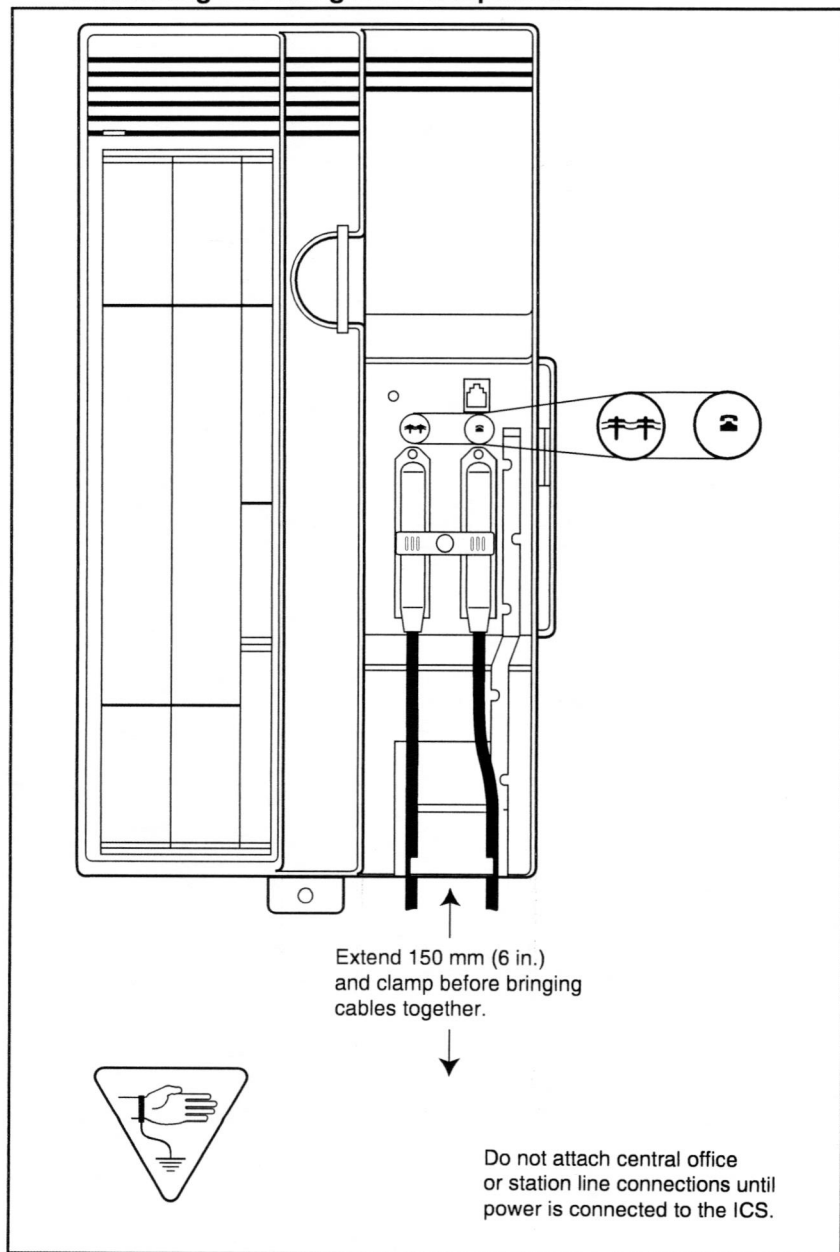
Alarm Telephone will indicate a cold reset.

An alarm and a prompt indicating warm or cold reset will occur on the alarm telephone when the system size has been decreased.



Connecting the wiring

Connecting the wiring for a Compact ICS



Connecting the wiring to the distribution panel

1. Route the cables from the ICS to the distribution panel.
2. Bundle the cables with cable ties and secure them to the wall to support their weight.
3. Connect the telephone and auxiliary equipment wires to the appropriate pins on the distribution block (refer to the wiring charts).
4. Cross-connect the ICS telephone and auxiliary equipment wiring to the corresponding station pins on the distribution block.
5. Using a single pair of wires for each telephone, connect each of the telephones according to the wiring charts.
6. Cross-connect the external lines to the distribution block (refer to the wiring charts).

Wiring charts

Port numbering on the wiring charts

The port number listed on the wiring charts is useful in tracking down faults during a Maintenance session where error codes appear on a Norstar telephone display. See the Maintenance chapter for more information.

For example, the code "112" appearing as part of an error message indicates that the problem is with the telephone connected to the system at port 112. The corresponding pins on the distribution block are pin 37 (black-orange) and pin 12 (orange-black).

Integrated communication system (ICS)

In the charts on the following pages, notice that the ICS has two 25-pair connectors. One handles telephones and auxiliary ringer. The other handles lines, I-ATA, music, and page.

B1 and B2 directory numbers (DNs)

Norstar has a B1 and B2 channel for transmitting voice and data. Each telephone port on the ICS has a B1 DN and a B2 DN. Devices such as the Norstar M7100, M7208, M7310, and M7324 telephones use only the B1 DN. Other devices may need both B1 and B2 channels, therefore requiring B1 and B2 DNs.

Norstar Compact ICS uses different numbering schemes for the B1 and B2 DNs, depending on how you upgrade your system and when an Expansion Cartridge is added. See the tables below for details.

ICS numbering (4x8)

Connector #	Device	Ports	B1 DN	B2 DN
ICS (#1)	Telephones 1-8 I-ATA I-RAD	101-108 117 118	21-28 29 (I-ATA) 30 (I-RAD)	31-38 39 40
ICS (#2)	Lines 001-004	201-204	— —	— —

ICS numbering (4x8 expanded to 8x16)

Connector #	Device	Ports	B1 DN	B2 DN
ICS (#1)	Telephones 1-8 I-ATA I-RAD Telephones 9-16	101-108 117 118 109-116	21-28 29 (I-ATA) 30 (I-RAD) 41-48	31-38 39 40 49-56
ICS (#2)	Lines 001-008	201-208	— —	— —

ICS numbering (8x16)

Connector #	Device	Ports	B1 DN	B2 DN
ICS (#1)	Telephones 1-16 I-ATA I-RAD	101-116 117 118	21-36 37 (I-ATA) 38 (I-RAD)	39-54 55 56
ICS (#2)	Lines 001-008	201-208	— —	— —

ICS numbering (8x24): Expansion Cartridge added at installation

Connector #	Device	Ports	B1 DN	B2 DN
ICS (#1)	Telephones 1-16 I-ATA I-RAD Telephones 17-24	101-116 117 118 119-126	21-36 37 (I-ATA) 38 (I-RAD) 39-46	47-62 63 64 65-72
ICS (#2)	Lines 001-008	201-208	— —	— —

ICS numbering (8x24): Expansion Cartridge added later

Connector #	Device	Ports	B1 DN	B2 DN
ICS (#1)	Telephones 1-16	101-116	21-36	39-54
	I-ATA	117	37 (I-ATA)	55
	I-RAD	118	38 (I-RAD)	56
	Telephones 17-24	119-126	57-64	65-72
ICS (#2)	Lines 001-008	201-208	— —	— —

ICS numbering (4x8 expanded to 8x24)

Connector #	Device	Ports	B1 DN	B2 DN
ICS (#1)	Telephones 1-8	101-108	21-28	31-38
	I-ATA	117	29 (I-ATA)	39
	I-RAD	118	30 (I-RAD)	40
	Telephones 9-16	109-116	41-48	49-56
	Telephones 17-24	119-126	57-64	65-72
ICS (#2)	Lines 001-008	201-208	— —	— —



Tip - B1 and B2 directory numbers reflect the default numbering scheme.



I-ATA and I-RAD are not physically connected to the ICS #1 25-pair connector.

The internal analog terminal adaptor (I-ATA) is wired on the ICS #2 connector along with the external lines and equipment for music and paging. The internal remote access device (I-RAD) appears on port 118 but has no wired connection.

ICS telephone and auxiliary ringer wiring chart

Pin	Wire color	Port	Service	Telephones (ICS)
26	White-Blue	101	T	1
1	Blue-White	101	R	1
27	White-Orange	102	T	2
2	Orange-White	102	R	2
28	White-Green	103	T	3
3	Green-White	103	R	3
29	White-Brown	104	T	4
4	Brown-White	104	R	4
30	White-Slate	105	T	5
5	Slate-White	105	R	5
31	Red-Blue	106	T	6
6	Blue-Red	106	R	6
32	Red-Orange	107	T	7
7	Orange-Red	107	R	7
33	Red-Green	108	T	8
8	Green-Red	108	R	8
34	Red-Brown	109	T	9
9	Brown-Red	109	R	9
35	Red-Slate	110	T	10
10	Slate-Red	110	R	10
36	Black-Blue	111	T	11
11	Blue-Black	111	R	11
37	Black-Orange	112	T	12
12	Orange-Black	112	R	12
38	Black-Green	113	T	13
13	Green-Black	113	R	13
39	Black-Brown	114	T	14
14	Brown-Black	114	R	14
40	Black-Slate	115	T	15
15	Slate-Black	115	R	15
41	Yellow-Blue	116	T	16
16	Blue-Yellow	116	R	16
no physical connection at port 117 (reserved for I-ATA)				
no physical connection at port 118 (reserved for I-RAD)				
42	Yellow-Orange	119	T	17
17	Orange-Yellow	119	R	17
43	Yellow-Green	120	T	18
18	Green-Yellow	120	R	18
44	Yellow-Brown	121	T	19
19	Brown-Yellow	121	R	19
45	Yellow-Slate	122	T	20
20	Slate-Yellow	122	R	20
46	Violet-Blue	123	T	21
21	Blue-Violet	123	R	21
47	Violet-Orange	124	T	22
22	Orange-Violet	124	R	22
48	Violet-Green	125	T	23
23	Green-Violet	125	R	23

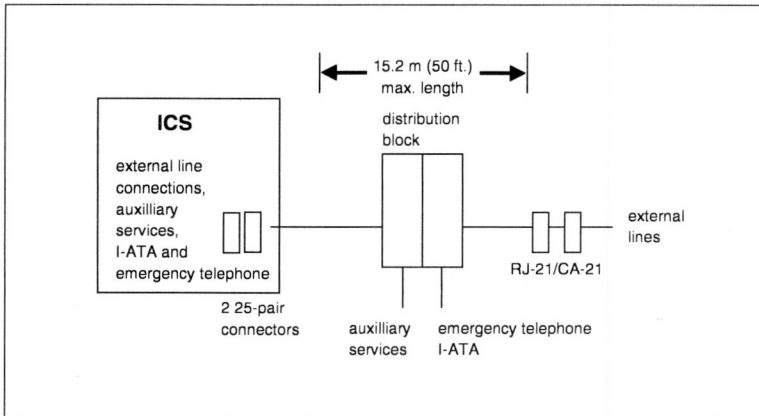
49	Violet-Brown	126	T	24
24	Brown-Violet	126	R	24
50	Violet-Slate	----	Make	Aux. ringer
25	Slate-Violet	----	Common	Aux. ringer

T and R represent station connections and should not be confused with Tip and Ring on external lines. Station connections are non-polarized.

Stations 18 through 25 are available only when an Expansion Cartridge is installed.

For default DNs, see the ICS numbering charts starting on page 40.

Wiring arrangement for Norstar ICS



ICS external lines, I-ATA, music, and page wiring

ICS external lines connector

Pin	Wire color	Port	Service	Equipment
26	White-Blue	201	T	Line 1
1	Blue-White	201	R	Line 1
27	White-Orange	202	T	Line 2
2	Orange-White	202	R	Line 2
28	White-Green	----	----	----
3	Green-White	----	----	----
29	White-Brown	----	----	----
4	Brown-White	----	----	----
30	White-Slate	203	T	Line 3
5	Slate-White	203	R	Line 3
31	Red-Blue	204	T	Line 4
6	Blue-Red	204	R	Line 4
32	Red-Orange	----	----	----
7	Orange-Red	----	----	----
33	Red-Green	----	----	----
8	Green-Red	----	----	----

44 / Connecting the wiring

34	Red-Brown	205	T	Line 5
9	Brown-Red	205	R	Line 5
35	Red-Slate	206	T	Line 6
10	Slate-Red	206	R	Line 6
36	Black-Blue	----	----	----
11	Blue-Black	----	----	----
37	Black-Orange	----	----	----
12	Orange-Black	----	----	----
38	Black-Green	207	T	Line 7
13	Green-Black	207	R	Line 7
39	Black-Brown	208	T	Line 8
14	Brown-Black	208	R	Line 8
40	Black-Slate	----	----	----
15	Slate-Black	----	----	----
41	Yellow-Blue	----	----	----
16	Blue-Yellow	----	----	----
42	Yellow-Orange	----	T	emergency telephone
17	Orange-Yellow	----	R	emergency telephone
43	Yellow-Green	----	----	----
18	Green-Yellow	----	----	----
44	Yellow-Brown	----	----	----
19	Brown-Yellow	----	----	----
45	Yellow-Slate	117	T	I-ATA
20	Slate-Yellow	117	R	I-ATA
46	Violet-Blue	----	----	----
21	Blue-Violet	----	----	----
47	Violet-Orange	----	----	----
22	Orange-Violet	----	----	----
48	Violet-Green	----	Ground	Music
23	Green-Violet	----	Music	Music
49	Violet-Brown	----	Make	External Page
24	Brown-Violet	----	Common	External Page
50	Violet-Slate	----	T	Page
25	Slate-Violet	----	R	Page

Lines 5 through 8 are not available to a 4x8 system that has not been upgraded.

For an explanation of port numbering, see Port numbering on the wiring charts on page 39.

The emergency telephone uses line 002 (on Trunk Cartridge in slot 1).

***Music source must be grounded.***

To avoid possible damage to your Compact ICS system or music source, the music source ground must be connected according to the wiring charts.

Wiring arrangement for serial port

- 1 = TxEN (input)
- 2 = signal GND
- 3 = Tx D (output)
- 4 = Rx D (input)
- 5 = ----
- 6 = RxRDY (output)

Installing telephones

Installing the emergency telephone

You can connect an emergency telephone to a ICS with a Loop Start Trunk Cartridge to provide emergency service when there is no power to the ICS. Install and test the telephone before powering up your system.

1. Wire a modular jack or equivalent to the emergency telephone pins on the 25-pair distribution block for the ICS external lines. (See the wiring charts for the pin numbers.)
2. Connect an analog telephone (500/2500) to the modular jack.
3. Prepare to test the emergency telephone by removing the Trunk Cartridge from the left slot.
4. Connect the power, then connect the central office lines to the ICS.
5. Pick up the emergency telephone receiver and listen for dial tone.
6. Disconnect the central office lines, then remove power from the system.
7. Replace the Trunk Cartridge in the left slot.
8. Continue with procedures for powering up the system.

The emergency telephone uses line 002.

Installing the device that uses the I-ATA

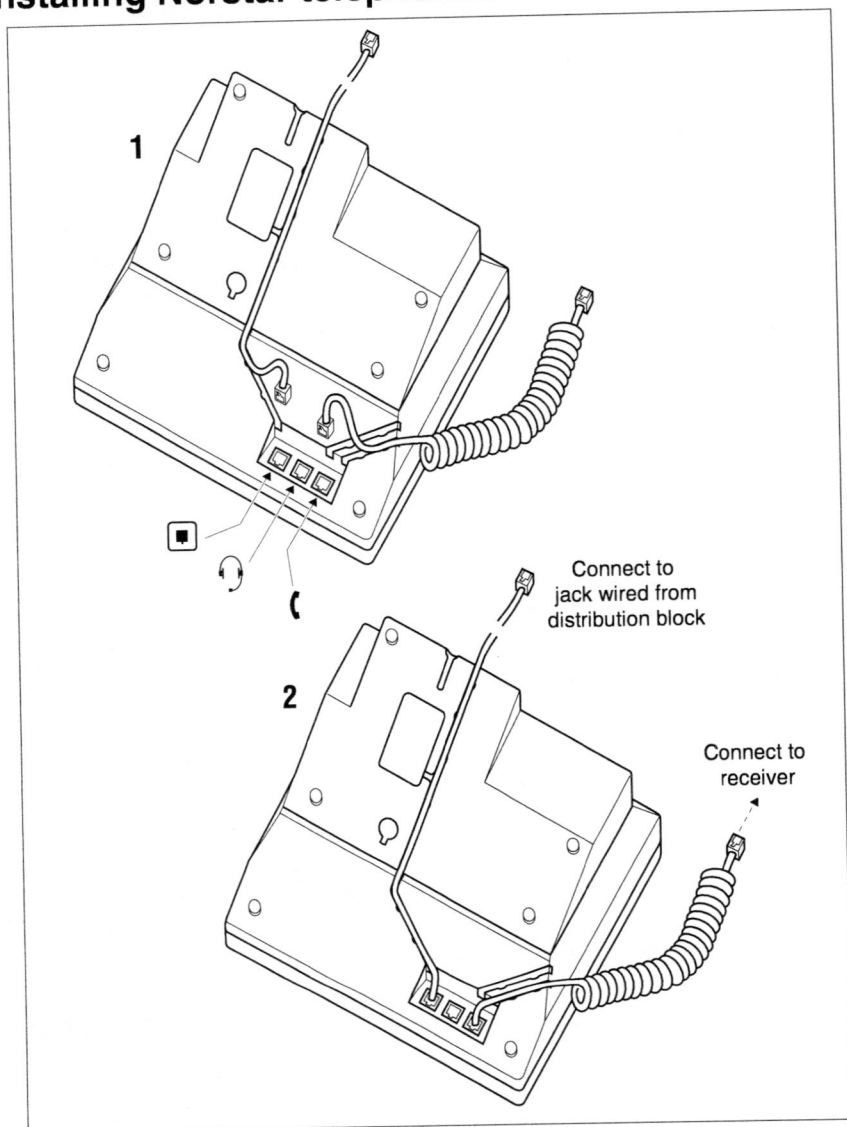
You can connect an analog telecommunications device such as a fax machine, answering machine, modem, or single-line telephone to the internal analog terminal adapter (I-ATA).

1. Wire a modular jack or equivalent to the I-ATA pins on the 25-pair distribution block for the ICS external lines and I-ATA. (See the wiring charts for the pin numbers).
2. Connect the analog device to the modular jack.
3. After the system has been powered up, verify proper operation. (See testing instructions on page 167).

The I-ATA cannot be used as an off-premise extension (OPX).
Maximum loop length is 900 m (3000 ft.).

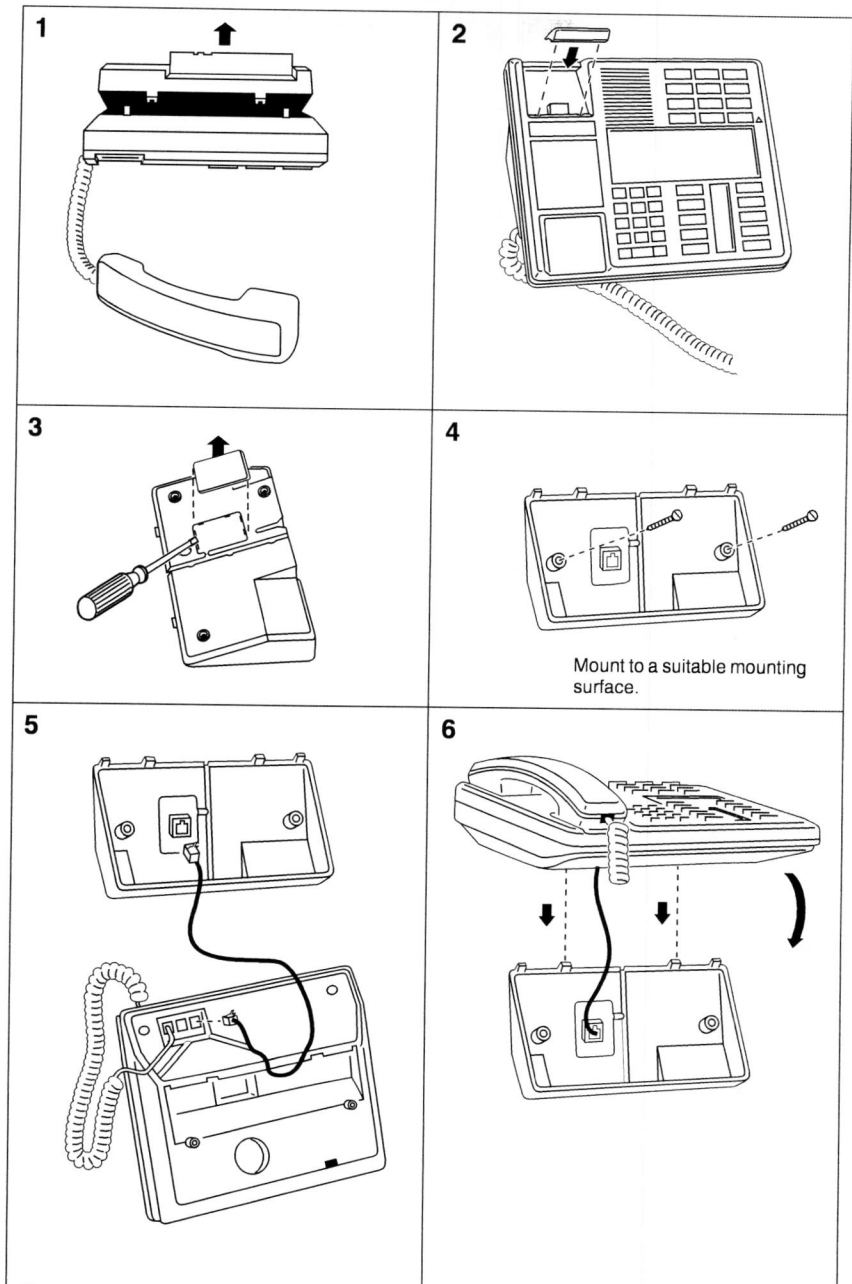
The I-ATA provides a reduced power analog interface for on-premises devices. See the specifications on page 229 for detailed electrical specifications.

Installing Norstar telephones



Tip - Norstar telephones cannot be used as off-premise extensions (OPX). For OPX applications, use the Norstar Analog Terminal Adapter (ATA) and a single-line telephone. See the ATA Installation Card for details.

Mounting Norstar telephones on the wall



Moving Norstar telephones

You can move a Norstar telephone to a new location within the Norstar system without losing its programmed settings. When Set relocation (automatic telephone relocation) is turned on in System programming, the internal numbers, autodial settings, and user speed dial codes remain with the telephone when it is unplugged. To move a telephone, simply unplug it and plug it in again at another location. It may take up to 45 seconds for the ICS to recognize the telephone. Automatic telephone relocation is turned off by default.



Relocate old telephones before adding new telephones.

Plug Norstar telephones in at their new locations so that they will retain their programmed settings. If a new telephone is plugged into the Norstar system before the old telephone is reconnected at a new location, Norstar will give the old telephone's information to the new telephone, and the old telephone will no longer be recognized by the system.



Do not move a relocated telephone for three minutes.

The telephone must remain installed and connected in the new location for at least 3 minutes for the programming relocation to be complete. If you move the telephone again before the 3 minute period, the telephone's programming may be lost.



Wait one minute before changing the DN of a relocated telephone.

Once a telephone has been moved to a new location, it must be connected for a minute before you change its DN in System prgming.

Installing optional equipment

Auxiliary ringer (customer supplied)

The Norstar ICS provides a control contact to operate an auxiliary ringer.

1. Follow the manufacturer's installation instructions.
2. Connect the auxiliary ring generator to the 25-pair distribution block as shown in the wiring charts.

The pins in the chart provide a control contact. They do not provide ring current or dc voltage. The contact is capable of switching a maximum of 50 mA and a maximum voltage of 40 V dc.

Auxiliary ringer programming

The auxiliary ringer can be activated by setting auxiliary ring for specific external lines, and auxiliary ring for specific telephones. Refer to the Programming chapter for details.

Heading	Programmed in:
Trunk/Line Data	Lines
Capabilities	Terminals&Sets
Ringing service	Services

External music source (customer supplied)

The music source can be any approved low-power device such as a radio with a high-impedance earphone jack. The recommended ICS input level is 0.25 V rms across an input impedance of 3300 Ω .

1. Connect the music source output to the 25-pair distribution block ensuring the input ground is connected to the music source ground, as shown in the wiring chart beginning on page 43.
2. Adjust the volume of the music source to a comfortable level by activating Background Music () and adjusting the volume at the music source.



Tip - *Background Music volume can also be adjusted at each telephone.*

External music source programming

Music for callers on Hold and for Background Music must be enabled through programming. Refer to the Programming chapter for more details. Refer specifically to the following Programming headings and confirm that the following settings are implemented:

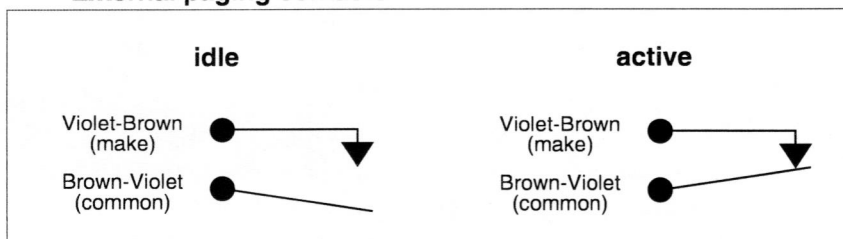
Heading	Setting
Featr settings	Backgrnd music: Y
	On hold: Music

External paging system (customer supplied)

You can connect an external paging system to provide paging over external loudspeakers. The paging output from the Norstar ICS is 100 mV rms across an input impedance of 600 Ω .

1. Follow the manufacturer's installation instructions.
2. Connect the paging system audio input to the 25-pair distribution block as shown in the wiring charts.
3. Connect the paging system relay to the 25-pair distribution block as shown in the wiring charts.

External paging contacts



Tip - *Norstar external paging does not support talk-back paging equipment unless an external line port is used.*

The Norstar system provides paging over the Norstar telephone speakers, even when no external paging equipment is connected.

Install all optional equipment before powering up the system.

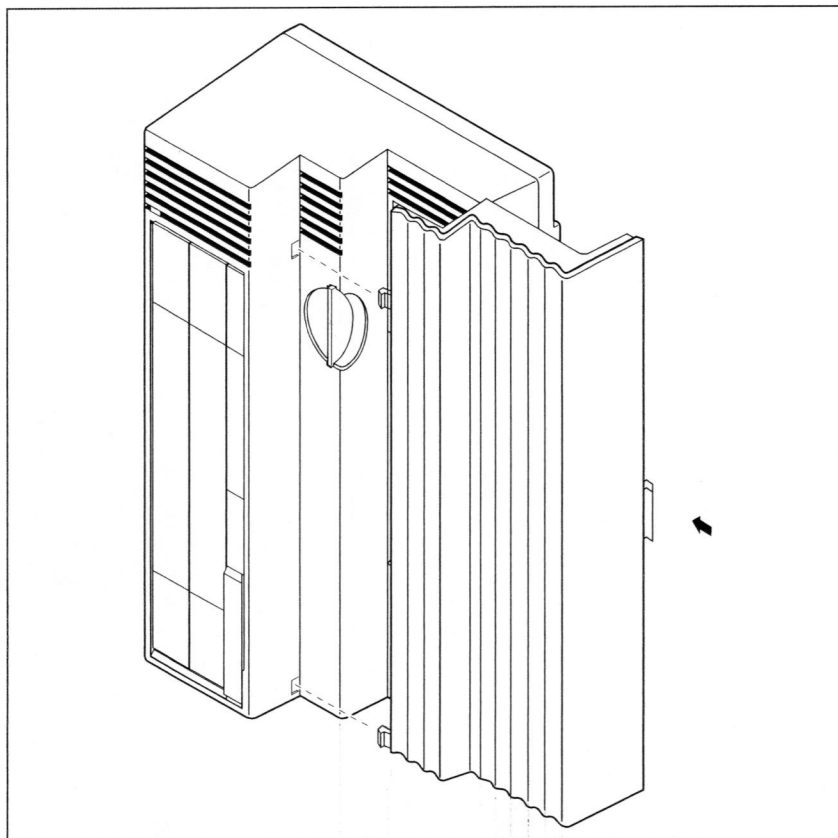
Powering up the system



Risk of fire and electrical shock.

For continued protection against risk of fire and electrical shock, ensure all unpopulated cartridge slots are covered by filler faceplates prior to powering up. Immediately after powering up, connect the central office and station line connectors and close the door.

1. Ensure the filler faceplates (slot covers) are in place.
2. Make sure the air flows freely around the unit and that nothing is sitting on or blocking the area around it. The gap between the ICS and the backboard must be left completely clear.



3. Double-check all wiring. Do not connect the central office and station lines prior to connecting power.
4. Connect the power cord to an electrical outlet (non-switchable, third-wire ground AC outlet).



Do not fasten power supply cords.

To comply with UL1459, do not fasten the ICS power supply cord to any building surface, including the backboard.

5. Check that the power LED on the ICS is on.
6. Connect central office and station line connectors.
7. Replace the door. Insert the tabs on the left side of the door into the slots on the ICS, as shown in the illustration. Then press the door closed until the tab on the right catches.

Once the system is initialized and the telephone displays reads Jan 1 1:00 am, you have fifteen minutes in which to perform Startup programming (see page 78). After 15 minutes, access to Startup programming is denied. You can turn the system power off and back on if you need to access Startup programming after this point.



Call Log information may be lost.

If the Norstar system suffers a power failure or the system is manually restarted, Call Log information is not saved. Notify users if a system restart is planned so any log information can be written down first.

Programming

The installer or the customer service representative programs settings for the entire Norstar system, plus settings for individual telephones and external lines. Most of the settings can also be programmed by a system coordinator who has a "plus" (SysCoord+) password.



Programming affects system operation.

Only a qualified installer or customer service representative should perform startup, installation and maintenance programming. Some of the settings affect the correct operation of the system.

Programming overview

Programming access is controlled by four passwords.

- Installer password – allows you to see and change any item in programming.
- System Coordinator Plus password – provides knowledgeable users with access to all but a few sensitive areas of programming.
- System Coordinator password – used to view and change the settings that are part of day-to-day administration of the Norstar system.
- Basic password – used with a limited number of feature codes to change programming and control system services.

The tables give an overview of what programming is seen by each type of user. For more information on programming the passwords, see page 131.

For more information about programming using the System Coordinator and Basic passwords, see the *System Coordinator Guide*.

Programming using the Installer and System Coordinator Plus password

Startup		Passwords		Hardware
Template		COS pwds		TC1 on KSU
Start DN		Call log pwds		TC2 on KSU
Terminals&Sets		Progrming pwds		Maintenance
Line access		IRAD pswd		System version
Capabilities		Time&Date		Port/DN status
Name		System prgrming		Module status
User preferences		Change DN's		Sys test log
Restrictions		Featr settings		Sys admin log
Telco features		Direct-dial		Loopback tests
Lines		CAP assignment		Remote montr
Trunk/Line data		Access codes		
Name		Auto Attendant		
Restrictions		Remote access		
Telco features		Rec'd # length		
Services		DN length		
Ringing service		Telco features		
Restrn service		VMsg ctr tel#s		
Routing service		Software Keys		
Common settings		SysID		
Sys speed dial		Password Keys		

Shaded items are seen only if you are using the Installer password. Settings that require an Installer password are identified with a special icon in the programming instructions.

Programming using the System Coordinator password

Terminals&Sets	Services	Time&Date
Capabilities	Ringin service	System prgrming
Name	Restrn service	Auto Attendant
User preferences	Routing service	Telco features
Restrictions	Sys speed dial	VMsg ctr tel#s
Telco features	Passwords	
Lines	Call log pslds	
Name	Progrming pslds	

If you are new to programming, you may want to practice using the step-by-step programming instructions in the "Getting Started" section of the *System Coordinator Guide* before attempting other programming.

Programming tools

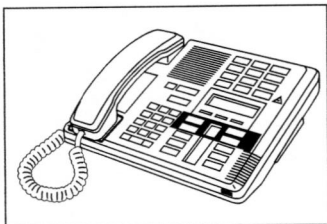
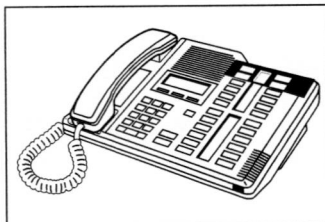
A Norstar telephone

Programming is done at an M7310 or M7324 telephone. Use the buttons on the telephone to program a setting or to request a specific programming action. Norstar guides you step-by-step with instructions on the telephone display while it is being programmed.

The programming overlay

The programming overlay is a paper cutout that labels four telephone buttons used during programming. The programming overlay is provided at the front of this book.



M7310 telephone with a programming overlay**M7324 telephone with a programming overlay**

The indicators (►) on the M7310 or M7324 telephone show which buttons can be used at that programming step. The functions on these buttons allow you to move through the headings and subheadings of Norstar programming.



moves to a higher level in the hierarchy of headings and subheadings.



moves to a lower level in the hierarchy of headings and subheadings, or begins programming for a heading or subheading.



moves forward at the same level in the hierarchy of headings and subheadings.

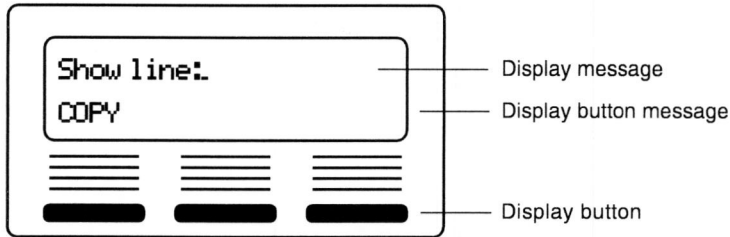


moves backward at the same level in the hierarchy of headings and subheadings.

These navigation buttons were labelled Heading, Show, Back and Next on the old Norstar programming overlay.

The Norstar display buttons

Display buttons on the M7310 and M7324 telephones perform many functions. Depending on where you are in programming, one, two, or three display buttons may be available at any one time. Press one of the display buttons to select the desired function.



The most common display button labels are:

<u>CHANGE</u>	changes a programmable setting
<u>BKSP</u>	moves the cursor one space to the left (backspace) and deletes a character, allowing you to re-enter a number or letter
<u>COPY</u>	copies the settings of items like lines, telephones and filters to an item of the same type
<u>LIST</u>	displays the lowest value in a list of DNs, lines or other items
<u>VIEW→</u>	views the last part of a displayed message longer than 16 characters
<u>←VIEW</u>	views the first part of a displayed message longer than 16 characters
<u>--></u>	moves the cursor one position to the right when programming a name
<u><--</u>	moves the cursor one position to the left when programming a name

Special characters on the display

When a triangle (▶) is at the end of a programming heading or sub-heading, it means you can press  to see settings.

When an ellipsis (...) is at the end of a heading or sub-heading, it means you can press  to see the setting for that heading.

The Norstar Programming Record

The *Programming Record* provides a convenient way to record what has been programmed. It also helps to plan the programming.

Pages from the record may be photocopied as necessary for programming many telephones or lines.

Exiting programming

Norstar stores changes automatically as soon as you alter any settings; you do not need to save changes.

1. Press . The display briefly reads End of session.

Viewing your programming updates

If any changes you have made to programming have not taken effect yet, you will see an UPDATE display button when you leave programming. The display will show you how many telephones have not been updated yet because the system is busy with other programming or the telephone is in use.

Press DNs to see the specific extensions where programming changes have not been updated. Items will disappear from the list as they are updated, and UPDATE will disappear once all changes are complete.

Entering numbers

A line number must always be entered as a three-digit number. Line numbers from 1 to 8 must be entered with leading zeroes (for example, line 003).

Internal telephone numbers, also referred to as directory numbers (DNs), can be two to seven digits long. The default DN length is two digits. The DN length can be changed in programming.

Copying telephone programming

Copying is done by using COPY under Terminals&Sets. You can copy programming from one telephone to another telephone, a range of telephones or all telephones.

1. At **Terminals&Sets**, press  and enter the internal number of the telephone from which you wish to copy programming.

Select what programming will be copied:

- **SYSTEM** – the system administration programming (system data) of a set

OR

- **SYSTEM+USER** – the system administration programming PLUS the programming for a particular set (user data)

See the tables starting on page 65 to see which settings will and will not be copied with system and user data.

2. Press , then **CHANGE** to select the telephone or telephones which will be programmed with the copied data: **SINGLE**, **RANGE**, **ALL**.

You can copy programming to telephones which are not yet hooked up to the system (unequipped).

3. Press , then **CHANGE** to select which telephones will be programmed: **Only equipped DNs**, **All set DNs**. This is not necessary when copying to a single telephone.
4. Press , and enter the internal number of the telephone that will be programmed or the internal numbers of the first and last telephone in a range.
5. Press **OK** to proceed with the copy. This step is not necessary when you are copying to a single telephone.

You can also use **COPY** to duplicate the settings found in the individual sub-headings. The button is available in Line access, Capabilities, User preferences, Restrictions and Telco features and will copy only the settings included in the sub-heading.

If you press **COPY** in one of these sub-headings, you will not be asked to decide if user data will be copied. Otherwise, the procedure is the same.



Tip - *To copy to a group of telephones which are not part of a range, follow the steps for making a single copy and keep entering new numbers at the Copy to: display.*

Depending on the activities going on in the system, a copy may not take effect for a while. The brief display you see once you have finished a copying session does not indicate the process is complete.

You can leave the programming session even if the copy has not been completed. If you exit programming, copying will continue uninterrupted until it is complete.

Event codes capture both the start and completion of the copying process. See the section on Event Codes in this guide for more information.

Some programming settings allow you to choose a delay according to the number of rings. The ring counts are based on a North American standard of six seconds per ring cycle. The actual delay time may be different for a device other than a Norstar telephone.

System Data which will be copied:	System data which will NOT be copied:
Line access • Line assignment • ILG assignment • Answer DN's (unless Answer button DN is same as set being copied to) • Line pool access • Prime line designation • Number of intercom keys Restrictions • Line/set restrictions • Set restrictions Capabilities • Allow redirect • Call Forward No Answer (DN + delay + setting) • Call Forward Busy (DN + setting) • Priority calling • Paging • Redirect ring • Set lock • Auxiliary ringer • DND on busy • Hotline • Handsfree answerback • Handsfree setting • Direct-dial (which set is reached by the D-Dial digit) • Pickup group • Paging zone • ATA ans timer (except Use ringback setting) Telco Features • 1stDisplay • Caller ID set (<i>Auto call info</i>) • Call Log set (<i>Logging set</i>)	Line access • Private line appearances Capabilities • Set name • Use ringback setting (for I-ATA only) Telco features • Log password • Log space CAP assignment Direct-dial set designation (which set is the D-Dial set) ExtraDial set designation Service mode ringing set designation Prime set designation for a line

User data which will be copied:	User data which will be copied if destination set type is the same as the source set type:
Language choice Ring type Calls log options (<i>Auto logging</i>) Display contrast Dialing options (automatic, pre-dial, standard)	External autodial button assignments Internal autodial button assignments Programmable button assignments

Ring volume, User speed dial and CAP module memory button programming are not copied with User data

Template defaults

The following charts show the default settings.

Where a DN is specified, it is the set with the lowest number on a system with a two-digit default DN.

Startup defaults

Setting	Default
Template	Square
Start DN	21

Terminals&Sets defaults

Line Access

Setting	Square	Hybrid	PBX
Line assignment	Lines 001 to 002: Appear & Ring All other external lines: Not assigned	Set 21 Line 001: Appear & Ring All other external lines: Not assigned All other sets Line 001: Appear Only All other external lines: Not assigned	All external lines: Not assigned
LinePool access	No	Yes (Pool A)	
Prime line	None	Intercom	Intercom
Intercom keys	2	Defaults same as Square	
Answer DNs	Unassigned	Defaults same as Square	
ILG assignment	Line groups 01 to 03 All lines: Not assignd		

Capabilities

Setting	Square	Hybrid	PBX
Fwd no answer	Forward to: None	Defaults same as Square	
Forward delay	3		
Fwd on busy	Forward to: None		
DND on Busy	N		
Handsfree	None		
HF Answerback	Y		
Pickup grp	None		
Page zone	1		
Paging	Y		
D-Dial	Set 1		
Priority call	N		
Hotline	None		
Set lock	None		
Aux. ringer	N		
Allow redirect	N		
Redirect ring	Y		
ATA ans timer (if port is an analog terminal adapter)	I-ATA: Use ringback Other ATA:7		

Name

Setting	Square	Hybrid	PBX
Name	21	Defaults same as Square	

User preferences

Setting	Square	Hybrid	PBX
Model	M7208	Defaults same as Square	
Button prgrming	see page 161		
User speed dial	No default		
Call log opt'ns	No one answered		
Dialing opt'ns	Standard dial		
Language	English		
Display cntrst	1		
Ring type	1		

Restrictions

Setting	Square	Hybrid	PBX
Filter 00	No restrictions (cannot be changed)	Defaults same as Square	
Filter 01			
Restr'n 01	0		
Restr'n 02	1		
Overrides	1800		
	1555		
	1●●555		
Restr'n 03	911		
Overrides	911		
Restr'n 04	411		
Restr'n 05	976		
Filter 02 to 99	No restrictions		
Set restrns	Normal 02 Night 11 Evening 12 Lunch 13 Sched 4 00 Sched 5 00 Sched 6 00		
Line/set restrns	All schedules: None		

Telco features

Setting	Square	Hybrid	PBX
CLASS assignment	Caller ID set: N Call log set: N Extl VMsg set: N	Defaults same as Square	
1stDisplay	Name		
Log space	Log: 0 Pool: 250		

Lines defaults**Trunk/Line data**

Setting	Square	Hybrid	PBX
Trunk type	Loop (cannot be changed)	Defaults same as Square	
Line type	Public	Pool A	Pool A
Dial mode	Tone	Defaults same as Square	
PrimeSet	21 (for each line)		
Auto privacy	Y (for each line)		
Trunk mode	Unspr		
Ans mode	Manual		
Ans with DISA (presented if Ans Mode is set to Auto)	Y		
Line grp	None		
Aux. ringer	N (for each line)		
Full AutoHold	N		
LossPkg	MediumCO		

Name

Setting	Square	Hybrid	PBX
Name	Line number (Line 001, for example)	Defaults same as Square	

Restrictions

Setting	Square	Hybrid	PBX
Filter 00	No restrictions (cannot be changed)	Defaults same as Square	
Filter 01	0 1 1800 1555 1...555 911 911 411 976		
Restr'n 01			
Restr'n 02			
Overrides			
Restr'n 03			
Overrides			
Restr'n 04			
Restr'n 05			
Filter 02 to 99	No restrictions		
Line restrns	Normal 03 Night 21 Evening 22 Lunch 23 Sched 4 00 Sched 5 00 Sched 6 00		
Remote restrns	Normal 04 Night 31 Evening 32 Lunch 33 Sched 4 00 Sched 5 00 Sched 6 00		

Telco features

Setting	Square	Hybrid	PBX
VMsg center	1 (for all lines)	Defaults same as Square	

Services defaults

Ringing service

Setting	Square	Hybrid	PBX
Ringing groups	Ring groups (all groups) Set 21 Assigned All other sets: Unassigned All modes Off Trunk answer Yes ExtraDial Set 21 For all lines Ring group 01 Aux. ringer No	Defaults same as Square	
All schedules	Service: Off Trunk answer: Y ExtraDial: 21 For all lines Ring group: 0 Aux. ringer: N		

Restrn service

Setting	Square	Hybrid	PBX
All schedules	Off	Defaults same as Square	

Routing service

Setting	Square	Hybrid	PBX
Route number	no defaults assigned	Defaults same as Square	
DialOut	no defaults assigned		
Use	Pool A		
Dest codes	All codes Normal route: 999 AbsorbLength: All All other routes: None		
All schedules	Service: Off Overflow: N		

Common settings

Setting	Square	Hybrid	PBX
Control sets	All lines Set 21 All sets Set 21	Defaults same as Square	
Schedule names	Schedule 1 Night Schedule 2 Evening Schedule 3 Lunch Schedule 4 Sched 4 Schedule 5 Sched 5 Schedule 6 Sched 6		
Schedule times	All days Schedule Start Stop Night 23:00 7:00 Evening 17:00 23:00 Lunch 12:00 13:00 Schedule 4 00:00 00:00 Schedule 5 00:00 00:00 Schedule 6 00:00 00:00		

System speed dial defaults

Setting	Square	Hybrid	PBX
Speed dial #	(no defaults assigned)	Defaults same as Square	
Use	Use prime line		
Display digits	Y		
Name (presented if Display digits is changed to No)	Sys spd dial <#nn> <#nn> is a two-digit system speed dial code (#12, for example).		
Bypass restr'n	N		

Passwords

Setting	Square	Hybrid	PBX
COS pswds	None	Defaults same as Square	
Call log pswds	None		
Progrming pswds	Installer: CONFIG SysCoord+: SCPLUS SysCoord: ADMIN Basic: BASIC		
IRAD pswd	Sys ID		

Time & Date

The default time and date is: 1:00 a.m., January 1, 1996.

System prgming defaults

Change DNs

Setting	Square	Hybrid	PBX
Change DNs	Individual DNs may be changed	Defaults same as Square	

Featr settings

Setting	Square	Hybrid	PBX
Backgrnd music	N	Defaults same as Square	
On hold	Tones		
Receiver volume	Use sys volume		
Camp timeout	45 (seconds)		
Park timeout	45 (seconds)		
Trnsfr callbk	3 (rings)		
DRT to prime	Y		
DRT delay	3 (rings)		
Held reminder	N		

Remind delay (presented if Held reminder is changed to Yes)	60 (seconds)	Defaults same as Square
Directd pickup	Y	
Page tone	Y	
Page Timeout	2700 (seconds)	
Daylight time	Y	
Call log space	No default	
Host delay	1000 (milliseconds)	
Link time	600 (milliseconds)	
AlarmSet	21	
Set relocation	N	

Direct-dial

Setting	Square	Hybrid	PBX
D-Dial 1	Intrnl: 21	Defaults same as Square	

CAP assignment

Setting	Square	Hybrid	PBX
CAP assignment	No default	Defaults same as Square	

Access codes

Setting	Square	Hybrid	PBX
Line pool codes	None	Defaults same as Square	
Park prefix	1		
Extrnl code	9		
Direct-dial	0		
Auto DN	None		
DISA DN	None		

Auto Attendant

Setting	Square	Hybrid	PBX
Auto Attend	OFF	Defaults same as Square	
Attd Set	21		
Language	First: English Second: None		
System Answer	After: 3 rings		
CCR	After: 3 rings CCR lines Line answer: NO (all lines) CCR groups All CCR groups: Unassgnd		

Remote access

Setting	Square	Hybrid	PBX
Remote access pkgs	Package 00 Prohibits access to line pools, remote Page and remote administration and monitoring. Cannot be changed Package 01 Line pool access: Yes for Pool A, No for Pools B and C Remote page: No Remote administration: No Remote monitoring: No Packages 02-15 Line pool access: No for Pools A to C Remote page: No Remote administration: No Remote monitoring: No	Defaults same as Square	
Rem line access	All lines: Remote package 00		

Rec'd # length

Setting	Square	Hybrid	PBX
Rec'd # length	2	Defaults same as Square	

DN length

Setting	Square	Hybrid	PBX
DN length	2	Defaults same as Square	

Telco features defaults

Setting	Square	Hybrid	PBX
VMsg ctr tel#s	All voice message centers: No number	Defaults same as Square	

Software Keys

Setting	Square	Hybrid	PBX
SysID	8-digit number that is unique to the system	Defaults same as Square	
Passwords Keys	Three keys of eight digits each		

Hardware defaults**Trunk Cartridges**

Setting	Square	Hybrid	PBX
TC1 on KSU	TC type: Loop Lines: 001-004 Disconnect timer: 460 (milliseconds)	Defaults same as Square	
TC2 on KSU	TC type: Loop Lines: 005-008 Disconnect timer: 460 milliseconds		

Startup programming

After the hardware has been installed and powered up, use Startup to initialize the system and select the Startup template.



Startup erases programming.

Startup erases any existing programmed data, and resets the system to factory defaults.

Performing Startup

1. Enter the Startup access code from a Norstar M7310 or M7324 telephone dial pad by pressing

Feature * * S T A R T U P which is the same as
Feature * * 7 8 2 7 8 8 7 .

To be accepted, the Startup code must be entered no later than 15 minutes after the Norstar system has been powered up. (If 15 minutes have elapsed since you powered up the system, turn system power off and on to prepare for the Startup process.)

2. Enter the Installer password. The default is C O N F I G which is the same as 2 6 6 3 4 4 .



Tip - *The Installer password shown is the default normally used for Startup. For a system which has already been programmed, the Installer password might have been changed in programming and recorded in the Programming Record.*

Changing the default template

After entering the Startup access code and Installer password the display reads **Reset memory?**.

1. Press YES to select a default template. The display shows the current template.
2. Press CHANGE to choose one of three templates (**Square**, PBX, or Hybrid). With the display showing the current template.

3. Press . The display shows the current start DN.
4. Press CHANGE.
5. Enter the new directory number you want as the starting DN and press OK. The display shows the new range of DN numbers.
6. Press  to store the programming. The display reads **Applying template**. The indicators begin to flash after a few moments, then the display reads Jan 1 1:00 am.



Changing template resets system programming.

If you change your system template, your system programming will be reset.

Changing the starting DN number

You can change the starting number for your internal numbers, also known as directory numbers (DNs). This is helpful when your system is part of a network and you want to use a uniform series of internal numbers for all telephones in your network.



DN numbering cannot conflict with direct-dial digit, park prefix or line pool and destination codes.

If the new DNs clash with the direct-dial digit, park prefix, or line pool or destination codes, those numbers are overridden and set to None.



Programming may be lost after three or more days without power.

All programming is retained for three days if the power fails or if the Norstar system is powered off. After three days without power, it may be necessary to perform Startup.



Tip - *The length of the new DN (internal number) can be from two to seven digits.*

The length of the internal number that you enter sets the length for all internal numbers in the system.

A DN length change, if required, should be the first programming change on a newly-installed Norstar system after you select a template.

If you reduce the length of the DN under System prgrming, the starting DN number is reset to the default value (21).

If you increase the length of directory numbers under System prgrming, each increase in length places the digit 2 in front of any existing DN. For example, if DN 32 was increased to a length of 4, the new DN would be 2232.

Do not disable or enable ports in Maintenance during the first two minutes after Startup programming.

Programming

After performing Startup, use programming to change default settings as required. Default settings for the Square template are shown in bold.

Headings and subheadings in programming help you to keep track of where you are.

Programming has the following headings:

Terminals&Sets	lets you assign settings to each telephone.
Lines	lets you assign settings to each trunk and external line.
Services	lets you create services such as night ringing, routing and restrictions for making external calls.
Sys speed dial	lets you create speed dial codes that can be used by any telephone in the system.
Passwords	lets you view and change passwords for programming and features.
Time&Date	lets you set the time and date on the system clock.
System Prmgng	lets you change system-wide settings, Auto Attendant and custom call routing programming.
Telco features	lets you assign settings for external voice message services.
Software keys	lets you upgrade a 4x8 system or access an optional remote administration feature through Northern Telecom.
Hardware	lets you configure the Trunk Cartridges used by the system.
Maintenance	lets you see diagnostic information about the system.

Entering programming for installers

- Press **Feature** * * C O N F I G which is the same as **Feature** * * 2 6 6 3 4 4. The display reads **Password:.**

2. Enter the Installer password. The default password is **CONFIG** (266344). The display reads **Terminals&Sets** ▶. Three triangular indicators ▶ appear on the vertical display between the rows of buttons.
3. Place the programming overlay over the buttons pointed to by the indicators ▶.

Entering programming for system coordinators

The person on staff who is in charge of making changes on the Norstar system is called the system coordinator. The everyday programming done by system coordinators is described in the *System Coordinator Guide*.

Some system coordinators need to be able to program more advanced settings and functions in order to carry out the day-to-day requests and upkeep of the Norstar. These coordinators are usually dedicated communications specialists who work with large Norstar systems or other telephone systems like PBX or Centrex.

By using a special password, a system coordinator can see and change many, but not all, of the programming settings used by an installer. In this guide, programming that can only be changed by an installer is marked by a special icon. If you are programming using the System Coordinator Plus password, you will not see these items when you move through programming.

1. Press * * C O N F I G which is the same as * * 2 6 6 3 4 4 .

The display reads **Password:**.

2. Enter the System Coordinator Plus password. The default password is **SCPLUS** (727587). The display reads **Terminals&Sets** ▶. Three triangular indicators ▶ appear on the vertical display between the rows of buttons.
3. Place the programming overlay over the buttons pointed to by the indicators ▶.

Entering programming using other passwords

A set of the most often used headings and subheadings is available by using a System Coordinator password (see page 59). This level of access is designed for the average user who takes care of the day-to-day changes to the Norstar system, but who is not interested in more advanced programming. The default password is ADMIN (23646).

There is also a Basic password that can be used to perform a few programming tasks. By using this password, a system coordinator can delegate some responsibilities while keeping more sensitive programming secure. See the *System Coordinator Guide* for more information.

Programming sequence

The programming information in this guide is presented in the order that is useful for everyday changes and upkeep of the system. The following order is more suitable for an installation.

Suggested order for programming a new installation:

- Startup
- Hardware
- Lines
- Terminals & Sets
- System prgrming
- Services
- Sys speed dial
- Telco features
- Passwords
- Time&Date
- Software Keys

Terminals&Sets

Terminals&Sets lets you assign settings to each telephone.

Press  and enter the extension number of the telephone you would like to program.

Press COPY to duplicate the programming for the telephone and apply it to another telephone, a range of telephones or all the telephones on the system. For more information about copying set programming, see Copying telephone programming on page 62.

Line access

Line access allows you to assign lines to individual telephones.

When you are finished programming Line access settings for one telephone, you can copy those settings to other telephones by using COPY at the Line Access ► display. For more information about copying set programming, see Copying telephone programming on page 62.

Line assignment

This setting allows you to assign physical trunks to each telephone.

Press  and enter the line number. Press CHANGE to change the setting for each line: **Appear&Ring**, Appear only, Unassigned, or Ring only.



Tip - Press SCAN to view the lines assigned to this telephone.

In general, auto-answer loop start trunks are not assigned to telephones. If assigned, they are used for monitoring incoming call usage, or for making outgoing calls.

You cannot assign a line that is private to another telephone.

Each line assigned to appear at a telephone must appear at a button with an indicator on that telephone.

If you set a line to Ring only, incoming calls appear on an intercom button.

A central answering position (CAP) with a CAP module can provide extra line buttons. The remaining lines appear on buttons on the CAP module.

The M7100 telephone is an exception; it has no line buttons and can be assigned any number of lines.

Make sure that lines assigned to an M7100 telephone are assigned to ring; otherwise, you cannot detect incoming calls on the lines.

Line pool access

This setting allows a telephone to access one or more of the three line pools available (A to C). When you change the setting to yes for a given line pool, the telephone being programmed can access any lines in that line pool.

Press  and  to display the line pool to which you want to program access. Press CHANGE to select the setting: **N** (No) and **Y** (Yes).

Prime line

This setting assigns a prime line to the telephone. A prime line is the first line that is automatically selected when a call is made from a Norstar telephone. Press CHANGE to select the setting: **None**, a line number, Pool (A to C), and I/C (intercom). (Only assigned lines and line pools appear.)



Tip - An assigned prime line is not associated with the assignment of a prime telephone.

An external line must be assigned to the telephone in Line assignment before it can be assigned as the prime line to the telephone.

A line pool must be assigned to the telephone in line pool access before a line pool can be assigned as the prime line to the telephone.

By assigning a line pool as a prime line, a telephone can be made to search automatically for an idle line in a pool. See Line type on page 100 for more information.

If you set Prime line to I/C (intercom), you can still access any line pools which you have assigned to the telephone. When you enter the line pool access code, the system searches for an idle line in that pool. When all the lines in the pool are busy, the display will show No free lines. The system will not search from one pool to another.

Intercom keys

This setting assigns the number of intercom buttons to a telephone. Intercom buttons can provide a telephone with access to internal lines and line pools. Press CHANGE to select the setting: 0, 1, 2, 3, 4, 5, 6, 7, or 8.



Tip - Each intercom button assigned during programming automatically appears on the telephone. The buttons start with the lower right-hand button, or one button above if the Handsfree/Mute feature is assigned to the telephone.

A telephone needs two intercom buttons to be able to establish a conference call with two other Norstar telephones.

Only one intercom button may be required if the button will only be used to access line pools and to make and receive internal calls.

If a telephone has several lines assigned only to ring and not to appear, the arrangement will work better if there are two intercom buttons.

The M7100 telephone default assignment of two Intercom buttons cannot be changed. These buttons do not appear on the telephone.

Answer DNs

Calls for other Norstar telephones can appear and be answered at the telephone being programmed. The DNs of the other telephones are referred to as Answer DNs. You can assign up to four Answer DNs to the telephone being programmed. Press  and enter the Answer DN. Press CHANGE to change the setting for the Answer DN: Appear&Ring, Appear only, or Unassigned.

To assign additional Answer DNs, press , then enter the next Answer DN.



Tip - Press SCAN to view the Answer DNs assigned to this telephone.

Every Answer DN assigned to the telephone automatically assigns an Answer button with an indicator to the telephone. These buttons should be labeled accordingly, identifying the telephone with its name or DN.

More than one telephone can have an Answer button for the same DN. In this way, more than one telephone can provide call alerting and call answering for any calls directed to that DN.

A private line does not generate alerting at an Answer button.

You cannot assign Answer DNs to an M7100 telephone or to a single-line telephone connected to an Analog Terminal Adapter.

ILG assignment

The Incoming Line Group assignment setting lets you assign incoming line groups to individual telephones. Press  and enter the ILG number (01-03). Press CHANGE to change the setting: **Not assigned**, assigned.



Tip - Press SCAN to view the ILGs assigned to this telephone.

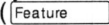
If you want incoming calls on a line in an incoming line group to ring at a telephone, assign the individual line to Ring only in Line assignment.

You cannot assign an incoming line group to a M7100 telephone or to a single-line telephone attached to an Analog Terminal Adapter.

Capabilities

Settings that control how the system interacts with individual telephones and the calls they receive are found in Capabilities. The default settings are given in bold.

Setting	Description	Options
Fwd no answer		
•Fwd to	Redirect all incoming calls when this telephone does not answer.	Enter DN None
•Forward delay	Select the number of rings before an unanswered call is forwarded.	2, 3 , 4, 6, 10
Fwd on busy	Redirect all incoming calls when this telephone is busy with another call.	Enter DN None
DND on Busy	Select whether an incoming call rings if the user is already on another call.	Y, N
Handsfree	Select whether Handsfree will be available to a telephone.	Auto, Std (Standard), None

Setting	Description	Options
HF answerback	Select whether a user can automatically answer a voice call without lifting the receiver or pressing the Handsfree/Mute button.	Y, N
Pickup grp	Assign this telephone to a pickup group.	None, 1, 2, 3, 4
Page zone	Assign this telephone to page zone.	None, 1, 2, 3
Paging	Select whether paging announcements can be made from this Norstar telephone.	Y, N
D-Dial	Select whether you can call the Direct-dial telephone from this telephone using the Direct-dial digit.	Set 1, None
Priority call	Select whether to allow this telephone to interrupt calls or to override Do Not Disturb at another Norstar telephone.	Y, N
Hotline	Select whether a telephone number will be dialed automatically when a user lifts the receiver or presses  .	Intrnl, Extrnl (enter DN), None
Set lock	Select the level of personal programming and customizing that can be performed at a telephone.	None, Partial, Full
Aux. ringer	Select whether an auxiliary ringer (if installed) will ring for incoming calls at this telephone.	Y, N
Allow redirect	Select whether to allow this telephone to redirect its lines.	Y, N
Redirect ring	Select whether a telephone rings briefly when a call on one of its lines is redirected by the Line Redirection feature ( 8 4).	Y, N

For more programming information, see the *System Coordinator Guide*.

ATA ans timer

A timer can be used to administer a delay between the last digit you dial on a device connected to an analog terminal adapter (ATA) and when the system begins to send out tones (DTMF or modem) on the outgoing line without capturing and interpreting them. To change the delay time, press CHANGE to select the setting (in seconds): ATA ans timer: 3, 5, **7**, or 10.

If the DN you are programming is the internal analog terminal adapter (I-ATA), you may also select **Use ringback**. When this setting is selected, the system's built-in ringback detection will be used to regulate the connection between analog devices.



Tip - *To accommodate the device attached to the ATA, you may want to lengthen or shorten the delay. If a modem or fax machine is attached to the ATA you will want to keep the delay short. If a call to a fax machine or modem cannot be connected, try shortening the delay. If an individual is dialing the number for a fax machine or modem, you may want to make the delay a little longer.*

Name

The default name for a telephone is its DN, but it can be changed to any combination of letters and numbers to a maximum length of 7 characters.

For more information, see the *System Coordinator Guide*.

User preferences

Any programming that can be done by users at their telephones can also be done in programming. The default settings are given in bold.

Setting	Description
Model	Allows you to pre-program the model of Norstar set which will use this DN (M7208). The I-ATA or a voice mail device will appear as a M7208. If you want to program the set with a CAP module, change the model to M7324.

Setting	Description
Button prgrming	Lets you program the buttons with internal and external autodialers and/or programmed feature keys. See page 160 for defaults.
User speed dial	Programs user speed dialers (No defaults).
Call log opt'ns	Select whether the set will log all calls, no calls, calls which were not answered by this telephone ,or calls which no one answered .
Dialing opt'ns	Select standard dial , pre-dial or automatic dial.
Language	Choose the display language: English , French or Spanish.
Display cntrst	Adjust the contrast of the display (1).
Ring type	Select a ring type (1).

For more information, see the *System Coordinator Guide*.

Restrictions

Restrictions prevent a user from making certain kinds of calls from a telephone or from lines that are available at the telephone.

When you are finished programming Restrictions settings for one telephone, you can copy those settings to other telephones by using COPY at the **Restrictions** ► display. For more information about copying set programming, see Copying telephone programming on page 62.

Restrn filters

A restriction filter is a set or group of restrictions and overrides that specify the external numbers or feature codes that cannot be dialed from a telephone or on a line. Rather than define individual restrictions and apply them repeatedly to telephones and to lines, restriction filters let you assign them in one step as a single package of dialing sequences that are not permitted.

In addition to restricting telephone numbers, you can prevent people from entering dialing sequences used by the central office (the public network) to deliver special services and features. Because some of these features provide the caller with dial tone after they have entered the special code (which often uses **#** or *****), users may have an opportunity to bypass restrictions. To prevent this from happening, you should create filters that block these special codes.

You create a filter by defining the dialing sequences that are denied. There will also be variations of each sequence that you will want users to be able to dial. Sequences that can be dialed are called overrides.

Once you create the filters, you can assign the restrictions to a telephone (under Terminals&Sets), to a line (under Lines), to a particular line on a telephone (under Terminals&Sets), and to remote caller (under Remote access).

Press **⇒** and enter the number of the restriction filter you want to program or press **↓** to move through all the available filters.

Press **⇒** to see the first restriction in the filter. The first four digits of the number that will be denied are included in the display. The full number can be seen by pressing **⇒** again.

Use **ADD**, the dial pad, and **OK** to program a restriction for each filter.

Press **↓** when the full restricted number is on the display (it shows **Deny:** and the number) to see any overrides to the restriction.

Use **ADD**, the dial pad, and **OK** to program an override for each restriction filter.

Press **ANY** to enter a • wild card character that represents any digit in a sequence of numbers when denying numbers or creating overrides.

You can press **REMOVE** to delete a restriction. The overrides will be deleted as well and the restrictions will renumber to fill the gap.

Default filters

Filter 00 permits unrestricted dialing and cannot be changed.

Filter 01 is preprogrammed with five restrictions and some associated overrides.

In Filter 01, restriction 02 and override 003 allow long distance directory assistance calls. Filter 01 reflects the fact that area codes can now have any digit as a second digit. This is also consistent with the new North American dialing plan.

Restriction filter defaults

Filter	Restrictions (denied)	Overrides
00	Unrestricted dialing	
01	01: 0	
	02: 1	001: 1800 002: 1555 003: 1•••555
	03: 911	001: 911
	04: 411	
	05: 976	
02 - 99	No restrictions or exceptions programmed	

Filters 02, 03, and 04, although not preset with restrictions and overrides, are used as default filters in these programming headings.

Filter	Heading	Sub-heading
02	Terminals&Sets	Set restrns:
03	Lines	Line restrn:

04	Lines	Remote restrn:
----	-------	----------------



Tip - *Filter 00 cannot be changed.*

Norstar can have up to 100 restriction filters (00 to 99).

Each programmable filter can have up to 48 restrictions. There is no limit on the number of overrides that can be allocated to a restriction.

There is a maximum of 400 restrictions and overrides allocated to the 100 programmable filters.

*The maximum length of a restriction is 15 digits.
The maximum length of an override is 16 digits.*

A solid dot (•) in a dialing sequence is a wild card (stands for any digit). It is inserted by pressing ANY.

*You can use * and # in a sequence of numbers in either a restriction or an override. These characters are often used as part of feature codes for other systems or for features provided by the central office (the public network).*

*When restricting the dialing of a central office feature code, don't forget to create separate restrictions for the codes used for DTMF and pulse lines. Examples of dialing strings that may be restricted for this reason are *67 and 1167.*

Do not string together a central office feature code and a dialing sequence that you want to restrict. Create a separate restriction for each.

You can use COPY and the dial pad to copy restrictions and overrides from one filter to another.

Any restriction or override can be used in any number of filters. Each time it is used, it counts as one entry. For example, if restriction 411 exists in filters 01, 02 and 03, it uses up three entries of the 400 entries available.

Removing a restriction from a filter has no effect on the contents of other filters even if the restriction was copied to them.

You cannot delete a filter. Removing the restrictions programmed on a filter makes it an unrestricted filter but the filter itself is not removed.



Removing a restriction changes the identifying number of the restriction.

Removing a restriction also removes the overrides associated with it, and changes the identifying number of the restriction. For example, removal of restriction 01 renumbers restrictions 01 to 08 as 01 to 07.

Set restrtns

Set restrictions lets you assign a restriction filter to a telephone to prevent certain numbers from being dialed from that telephone. You can assign a different restriction filter for normal service and for each of six schedules. See the section on Services for more information about the schedules.

Use , CHANGE and the dial pad to enter the number of the restriction filter to be assigned to the set for each schedule. The default restrictions are as follows:

Default filters for sets

Schedule	Restriction filter
Normal	02
Sched 1 (Night)	11
Sched 2 (Evening)	12
Sched 3 (Lunch)	13
Sched 4	00
Sched 5	00
Sched 6	00

This means, for example, that if you enter a set of restrictions for filter 11, they will be automatically applied when the Night schedule is in use.

Line/set restrns

Line/set restrns lets you assign a restriction filter to a specific line that can be used for outgoing calls at a specific telephone. This type of filter replaces any line or set restriction filters which might otherwise apply. It restricts the numbers you can dial on a line, but only from that telephone. The same line on another telephone can have different restrictions.

As with set restrictions, you can apply a different line/set restriction for normal service and for each of six schedules.

Use , **CHANGE** and the dial pad to enter the number of the filter to be assigned as the line/set restriction for each schedule. There are no default line/set restrictions.



Tip - A maximum of 255 line/set restrictions may be applied to lines at telephones.

If a line/set restriction is assigned to a line at a particular telephone, it overrides any line restrictions or set restrictions which might otherwise apply.

If no line/set restrictions have been defined, the numbers are checked against the set restrictions and the line restrictions, if either of these have been defined. The numbers may be rejected by either restriction.

Telco features

Telco features can program the way the Norstar works with features and services that are based in the public network or other outside source. Norstar is designed to work with two of these kinds of services: Call Display and an external voice message service.

When you are finished programming Telco features settings for one telephone, you can copy those settings to other telephones by using COPY at the Telco features ► display. For more information about copying set programming, see Copying telephone programming on page 62.

CLASS assignment (CMS)

If you subscribe to Call Display services (often called Caller ID), external calls are identified on the display. You may also have a message indicator from an external voice mail service show on the display. CLASS assignment programming allows you to customize how this information is used.

Press  and enter the number of the line you want to program with CLASS settings for the telephone.

Caller ID set

Caller ID set allows you to specify if a telephone displays the Call Display information when a call is ringing on an external line. (After the call is answered, Call Display information is always shown at the telephone that answered the call.) Press CHANGE to select the setting: **N** (No) or **Y** (Yes).



Tip - *In order for a telephone to display the Call Display information for calls on an external line, it must also be programmed to ring for that line.*

For systems that subscribe to Call Display services, Caller ID can be viewed on any telephone by entering the Call Information feature code (Feature). See the Telephone Feature Card or System Coordinator Guide for more information.

Call information does not automatically appear when the telephone is a part of a CCR group, has an Answer DN, or belongs to a Ring group activated by Ringing Service. Call information is still available for these calls by pressing

Feature .

Call log set

Call log set allows you to specify whether the telephone automatically logs Call Display information for calls on an external line. The line must appear on that telephone but it does not have to be a ringing line. Press CHANGE to select the setting: **N** (No) or **Y** (Yes).

Extl VMsg set

If you subscribe to a voice message service, you can access that service through your Norstar system. The external voice message setting controls where the indicator shows up when there is a voice message waiting on a particular line. The line must appear on that telephone. Press CHANGE to select the setting: **N** (No) or **Y** (Yes).



Tip - *To find out if your voice message service will work with Norstar, or if you have any problems with your service, contact your voice message service provider.*

1stDisplay

Depending on the services you subscribe to, Call Display information may contain up to three parts: the name of the caller, the number of the caller, and the name of the line in your Norstar system that the call is on. For each telephone, you can determine which information is displayed first. Press CHANGE to select the setting: **Name**, **Number** or **Line**.



Tip - *The Call Information feature is used to display and scroll through all of the Call Display information: the caller name, number and line number. See the System Coordinator Guide for more information.*

You may see **Unknown name** or **Unknown number** on the display if the information is not available from your telephone company. You may see **Private name** or **Private number** on the display if the caller blocks that information.

Log space

Log space determines the number of items that can be stored in the Call log for each telephone. Use , ADD and REMOVE to redistribute the log space. There is no log space assigned by default.



Tip - *There must be space available in the log pool in order for you to add space to a Call log. The maximum number of spaces available is 250.*

System-wide log space allocation is performed in Call log space under System programming. If you want to allocate the same log space to all telephones, it may be appropriate to use the Call log space setting instead.

Lines

Trunk/Line Data



Installer password required

Trunk data lets you program settings for lines that affect how the Norstar communicates with the public network and other switches. Line data lets you determine how a line will be used in the Norstar system.

Copying Trunk and Line data

At the Trunk/Line data ► display COPY appears. This allows you to copy programming from one line to other lines.

Trunk type



Installer password required

The Line setting shows **Loop**, the trunk type for a line.



Tip - *This display is determined by the Trunk Cartridge. The system simply displays the trunk type; you cannot change it.*

Line type



Installer password required

This setting specifies how the line is to be used in relation to other lines in the system. Press CHANGE to select the setting: **Public**, **Private to:**, or **Pool** (A to C, representing 3 line pools).

- A public line can be accessed by more than one telephone.
- A private line can be assigned only to one telephone and the prime telephone for that line. Use CHANGE and the dial pad to enter the internal number of the telephone.
- Pool assigns the line to one of the three line pools. If a line is assigned to a line pool, but is not assigned to any telephone, that line is available only for outgoing calls.



Tip - Try to avoid putting unsupervised loop start lines in a line pool. These lines can become hung, especially when a remote user uses the line pool to make an external call.

Before a line pool can be used you must assign line pool access to telephones in Line Access under Terminals&Sets, and system-wide line pool codes in Access Codes under System prgrming.

*A telephone can be administered to search automatically for an idle line from several lines appearing on the telephone. Assign a line pool as the prime line (in Line Access) and all the lines in the line pool must appear on that telephone. When the user lifts the receiver or presses Handsfree
Mute, any one of the lines, if idle, can be selected by automatic outgoing line selection.*

When you set prime line to I/C (intercom), the system chooses the first available line after searching the line pools, starting with line pool A.

Dial mode



Installer password required

Dial mode lets you specify whether dual tone multifrequency (DTMF) or pulse signalling is used on the trunk. Press CHANGE to select the setting: Pulse or **Tone**.

Prime set



Installer password required

This feature allows you to assign a telephone to provide backup answering for calls on the line. Unanswered calls are redirected to the prime telephone if DRT to prime is set to Yes. Use CHANGE and the dial pad to enter the internal number of the prime telephone.



Tip - Each line can be assigned only one prime telephone.



Auto privacy

Installer password required

This feature controls whether one Norstar user can select a line in use at another telephone to join an existing call. The default setting is Privacy on, so that nobody with a Norstar telephone can press a line appearance on their telephone to join a call in progress at another telephone. Press CHANGE to select the setting: **Y** (on) and **N** (off).



Tip - Users can change a line's privacy setting for an individual call using the privacy feature (Feature).



Trunk mode

Installer password required

Trunk mode lets you specify one of two modes of operation for each line: disconnect supervision or unsupervised. Disconnect supervision, also referred to as loop supervision, releases an external line when an open switch interval (OSI) is detected during a call on that line. This prevents the line from remaining unavailable for other Norstar users.

Press CHANGE to select the setting: **Unspr** or **Super**.

- **Unspr** (the default) turns disconnect supervision off for the line.
- **Super** assigns supervised mode, if supported by the line; otherwise, the line functions as unsupervised.



Tip - The duration of an open switch interval (OSI) before Norstar disconnects a call is programmed by the Discon timer setting under Hardware.

Disconnect supervision is required for loop start trunks to operate in auto-answer mode or with DISA. It is also required to conference with two external callers.

The line must be equipped with disconnect supervision from the central office for the Super option to work.

Ans mode



Installer password required

The Answer mode setting appears on the display during programming for loop start lines if the Trunk mode setting was Super. Press CHANGE to select the setting: **Manual** or Auto.



Tip - Remember that disconnect supervision is required if loop start trunks are to operate in auto-answer mode.

Ans with DISA



Installer password required

When activated, the Answer with DISA setting specifies that a trunk is answered with stuttered dial tone. Press CHANGE to select the setting: **Y** (Yes) or **N** (No).



Tip - This setting only appears if Answer mode is Auto.

Line grp



Installer password required

Select whether this line will be part of an incoming line group. An incoming line group is a group of lines used only for receiving incoming calls. This allows a group of incoming lines to appear and/or ring at only one button on a telephone. Press CHANGE to select the setting: **None** or ILG (01 to 03, representing 3 incoming line groups).



Tip - *Do not assign auto-answer loop start lines to an incoming line group.*

Since the incoming line group button tracks up to two calls at once, only program two lines to each incoming line group button. If you require more than two lines to appear under an incoming line group button, use additional line groups programmed to that set.

For example, if you have 5 lines to program to an incoming line group, program the first two to ILG 01, and the next two to ILG 02 and the last one to ILG 03. Program ILG 01, 02, and 03 to the sets where these lines will ring.

There is a delay of one ring for lines with an ILG appearance. For example, if line 02 in ILG 01 is programmed on set 22 with line 02 programmed to ring only, and set 23 to appear and ring, when a call comes in on line 02, set 23 will ring before set 22.

There is a delay of two rings between the ringing the caller hears and the ringing of the ILG sets, however the indicator associated with the sets will flash immediately. You must consider this when setting up voice messaging. For example, if you program your voice messaging service to answer after 4 rings, it may answer after 4 rings even though the user will hear only 2 rings.

For quicker response to a number of incoming lines from a group of sets, provide several intercom appearances on each set, and program the lines as ring only on those sets.

An incoming line group must be assigned to appear at a telephone.

Whether a line in an incoming line group rings at a telephone depends on the ringing setting for the line the call is on. If an incoming line group contains a mix of ringing and non-ringing lines, it will ring for some calls and not for others.

If you answer a call on an incoming line group, and a second call comes in on the same group, your telephone rings softly. However, you cannot answer the second call without ending the first.

You cannot make a call using an incoming line group.

Note the difference between incoming line groups and line pools. An incoming line group is a collection of lines used only for incoming calls. A line pool is a collection of lines used only for making outgoing calls. These groupings are for convenience in making and answering calls; they do not limit how the lines themselves can be used. A line may appear in a line pool, an incoming line group, and individually on telephones at the same time. However, you cannot place a line in more than one incoming line group or line pool.

You can place a call in an incoming line group on hold and retrieve it in the normal way. However, a held ILG call cannot be picked up at any other telephone unless the line is assigned to appear at that telephone.

Aux. ringer



Installer password required

This setting allows you to turn the auxiliary ringer on or off. When turned on, the auxiliary ringer rings for any incoming calls that ring on the line. The auxiliary ringer is an optional device that must be connected by the installer. Press CHANGE to select the setting: Y (Yes) and N (No).



Tip - An auxiliary ringer can be programmed, under Services in Ringing Service, to ring for a line placed into a scheduled ringing service. An auxiliary ringer can also be programmed to ring for calls to a telephone. See the System Coordinator Guide for more information.

If you have an auxiliary ringer programmed to ring for calls on an external line, and you transfer a call on that line without announcing the transfer, the auxiliary ringer will ring for the call transfer.

Full AutoHold



Installer password required

Full AutoHold on idle line is a variation of the Automatic Hold feature. If you select an idle line, but do not dial any digits, that line is automatically placed on hold if you then select another line. Press CHANGE to select the setting: **N** (No) or **Y** (Yes).

The line you first selected is held until you press its button. The line is not available for use by anyone else.



Tip - The default setting should be changed only if Full AutoHold is required for a specific application.

LossPkg



Installer password required

Loss Package lets you select the appropriate loss/gain and impedance settings for each line. The setting is based on the distance between the ICS and the terminating switch, and the terminating switch type.

The following table shows the available settings.

LossPkg	Receive Loss	Transmit Loss	Impedance	Distance to switch/cable loss/terminating switch
ShortCO	0 dB	3 dB	Short	Short/<2 dB/ICS to CO
MediumCO	0 dB	0 dB	TIA/EIA 464	Medium/>2 dB and <6 dB/ICS to CO
LongCO	-3 dB	0 dB	TIA/EIA 464	Long/>6 dB/ICS to CO
ShortPBX	0 dB	0 dB	Short	Short/<2 dB/ICS to PBX
LongPBX	-3 dB	0 dB	TIA/EIA 464	Long/>2 dB/ICS to PBX

A loss of 4 dB corresponds to a cable length of approx. 2700 m (9000 ft.).

Press CHANGE to select the setting: ShortCO, **MediumCO**, LongCO, ShortPBX or LongPBX.



Tip - This setting applies only to lines connected to an LS/DS Analog Trunk Cartridge. It does not apply to a CI Trunk Cartridge.

When measuring the distance from ICS to CO and from ICS to PBX, use 600 ohms as the termination resistance setting.

Name

The default name for a line is "Line" and its three-digit number (for example, Line 001), but it can be changed to any combination of letters and numbers to a maximum length of 7 characters.

For more information, see the *System Coordinator Guide*.

Restrictions

Preventing a user from using a line for making certain kinds of calls is done in Restrictions. For example, users should not be able to make long-distance calls on lines used exclusively for local calling.

Restrn filters

A restriction filter is a set or group of restrictions and overrides that specify the external numbers or feature codes that cannot be dialed from a telephone or on a line. Rather than define individual restrictions and apply them repeatedly to telephones and to lines, restriction filters let you assign them in one step as a single package of dialing sequences that are not permitted.

You can make changes to restriction filters under both Terminals&Sets, and Lines. Any changes will take effect for any telephone, line or line on a telephone regardless of where the programming was changed.

See the description and procedures for restriction filters under Terminals&Sets in this guide (page 91) for more information.

Line restrns

Specify the filter to be applied to this line to restrict the numbers that can be dialed on it. You can assign a different restriction filter for normal service and for each of six schedules. See the section on Services for more information about the schedules.

Use  , CHANGE and the dial pad to enter the number of the restriction filter to be assigned as the line restriction for each schedule. The default restrictions are as follows:

Default filters for lines

Schedule	Restriction filter
Normal	03
Schedule 1 (Night)	21
Schedule 2 (Evening)	22
Schedule 3 (Lunch)	23
Schedule 4	00

Schedule 5	00
Schedule 6	00



Tip - When a remote user places an external call on a line, any filters used with the line still apply.

Remote restrns

Specify the restriction filter to be applied to remote callers calling in to the Norstar system on this line. A restriction filter is a set or group of restrictions and overrides.

As with line restrictions, you can apply a different remote restriction for normal service and for each of six schedules.

Use **CHANGE** and the dial pad to program the remote restrictions for each schedule. The default restrictions are as follows:

Default filters for remote access

Schedule	Restriction filter
Normal	04
Schedule 1 (Night)	31
Schedule 2 (Evening)	32
Schedule 3 (Lunch)	33
Schedule 4	00
Schedule 5	00
Schedule 6	00



Tip - The remote restriction restricts the numbers that can be dialed on an incoming auto-answer line. If a remote user then selects a line to place an external call, any filter used with the line still applies.

Telco features

VMsg center 1

If you subscribe to a voice message service, you can specify which voice message center is used for each external line that can receive message waiting indication. For each line, press CHANGE to select the setting: 1, 2, 3, 4, 5, or N (None).

You enter the telephone numbers for each of the five voice message centers under the general Telco features heading.

Services

Using Services, you can control three types of service by the time of day and day of week:

- alternate call ringing for certain times and days
- alternate dialing restrictions for certain times and days
- alternate call routing for certain times and days

Each of the three services has six schedules that you can customize.

For example, you may want to combine alternate call ringing with alternate dialing restrictions for lunchtime, evenings, and weekends (Schedules 1, 2, and 3). Then you may want to run alternate call routing using three separate schedules.



Tip - *Once you have programmed the different services and schedules, you can turn each of the services on separately. For example, the Night schedule might control both Ringing service and Restriction service. But you can turn on just the Ringing service part of the Night schedule if you wish.*

You can activate the services from the designated control telephone for each Norstar telephone and line in your system. You can have one control telephone for the whole system, or different control telephones for different Norstar telephones and lines.

If you want to have several services active at the same time, simply program them on for the same schedule.

Ringing service

At certain times or in certain situations, you may want additional telephones to begin ringing for incoming lines. The most common use of this feature is when a security desk telephone begins to ring for incoming lines after 5:00 p.m., a practice often called "night service".

These features are programmed under Ringing service.

Ring Groups

Ring groups allows you to define groups of extended ringing sets. A group can be assigned to any line for any of the schedules. You can create up to 20 ring groups.

To define a ring group use  and enter the number of the group you want to program (01-20).

Once you define a ring group, the display will prompt you to enter the number of the set you want to assign to this ring group. You can use SCAN to display the sets that are assigned to the ring group.



Tip - You can assign any set on the Norstar system to a ring group. The assigned control set for each schedule is added to each ring group.

A set can belong to more than one ring group.

Night sched

Indicate how Ringing service should be activated for each of the schedules.

Service

Use , , and CHANGE to change the setting for each schedule: **Off**, **Automatic**, or **Manual**.

Manual allows you to turn the service on and off at any time from a control telephone using the Ringing service feature code.

Automatic allows you to program a stop and start time for a service. You are still able to start and stop the service by entering the appropriate Services feature code at a control telephone. If you select this setting, you will have to set start and stop times. See Schedule times on page 127 for information on programming times.

Off prevents the service from being activated.

Trunk answer

Trunk answer allows you to answer, from any telephone, an external call that is ringing at another telephone in your office. This is useful if the other telephones have not been assigned the same lines as the telephone you are using to answer the call.

Press CHANGE to select the setting: **Y** (Yes) or **N** (No).



Tip - *You can change the Trunk Answer setting only if Ringing service is set to Manual or Automatic.*

ExtraDial telephone

ExtraDial telephone allows you to assign an additional direct-dial telephone in the Norstar system for each schedule you use.

Use CHANGE and the dial pad to enter the internal number of the extra-dial telephone.



Tip - *The extra-dial telephone is activated during a schedule by entering the Ringing service feature code from a direct-dial telephone. This does not activate the Ringing service unless the direct-dial telephone is also a control telephone.*

Line settings

The ring groups and auxiliary ringer use for Ringing service is programmed for each line individually.

Ring group

You can assign a pre-defined ring group to a line for each schedule. See Ring groups in this section to create groups of extra ringing telephones.

Using the dial pad, enter the line number to see which ring group is assigned to the line. Press CHANGE and the ring group number (01-20) to choose a different ring group assignment.



Tip - *Only one ring group can be assigned to a line for each schedule. To combine groups of ringing sets, you must create a new ring group which contains all the sets you want to ring and assign it to the line.*

Aux. ringer

Indicate whether the auxiliary ringer (if installed) also rings when Ringing service is on. Press CHANGE to select the setting: **Y** (Yes) or **N** (No).



Tip - *The default ringing telephone is 21. This means that all lines ring at telephone 21 when Ringing service is on.*

You can use COPY and the dial pad to copy Ringing set and Auxiliary ringer programming from one line to another.

If you have an auxiliary ringer programmed to ring for calls on an external line, and you transfer a call on that line without announcing the transfer, the auxiliary ringer will ring for the call transfer.

Restrn service

Indicate how the alternate dialing restrictions should be activated for each of the schedules.

Use , , and CHANGE to change the setting for each schedule: **Off**, **Automatic**, or **Manual**.

See Ringing service in this section for descriptions of the three settings.

See Restrictions under both Terminals&Sets and Lines to assign dialing restrictions for telephones, lines and remote users to the schedules.

Routing service

The programming for routing service decides what path an outgoing call takes using the digits that are dialed. It is sometimes called automatic route selection (ARS).

When you select an internal line and dial, the numbers you enter are checked against the routing tables. If the number you dialed starts with a destination code, the system uses the line pool and dials out digits specified by the route assigned to that destination code, and then dials the number that you dialed.

Routing service replaces a number of tasks that otherwise have to be done manually, including:

- entering a line pool code
- dialing an access code for a long distance carrier
- deciding which line pool to use according to the time and day

The installer can set up routing to take advantage of any leased or discounted routes using information supplied by the customer. The system itself cannot tell which lines are cheaper to use.

Using routing to create a transparent dialing plan or coordinated dialing plan is explained in the "Norstar in a network" chapter beginning on page 13.



Tip - The numbers used for destination codes must not conflict with:

- Call Park prefix
- External access code
- direct-dial number
- Line pool code
- internal extension numbers (intercom)
- DISA extension numbers
- Auto DN's

For example, the system will confuse an internal number of 221 and a destination code of 22 because even if the caller dialed the complete internal number, the call would be routed using the first two digits. But an internal number of 221 and a destination code of 23 would work.

A table of the initial digits used by default for all these features is included in the section on Access codes programming.



Plan your routing service before doing any programming.

Routing affects every call placed in the system and must be carefully planned to avoid conflicts and gaps in the programming. Use the tables in the *Programming Record* to design routes and destination codes, then check for potential problems before you start programming. It will also save you time to have all the settings written out in front of you.

Routes

Press  and enter a 3-digit route number (001-999).

DialOut

Press  and enter the DialOut digits (up to 24).

If you do not enter a DialOut, you will not be able to select a line pool and the route will not be recognized by the system.

In the DialOut, P stands for pause, a host system signalling option. Press to insert a 1.5 second pause in the dialing string. It is possible to insert a pause in place of digits in the DialOut.

Use Pool

Press and CHANGE to select a line pool to be used with the route:
Pool A, Pool B, Pool C.

Dest codes

Enter a destination code that will be recognized when used as part of a telephone number for an outgoing call. It can be up to seven digits long.



Tip - Press CLR and ADD to change the digits for an existing destination code.

Normal rte

Select which route a call using the destination code will take during normal service and for each of the schedules. The automatic schedule times are programmed under Services. The default Normal route is **999**.

If you have not entered a DialOut for a route, it will not be available for you to use with a destination code.

AbsorbLength

Select the portion of the destination code that is always absorbed by the system and not used in the dialing sequence. Press CHANGE to select the number of digits to be deleted: 0, 1, 2, 3, 4, 5, 6, or **All**.



Tip - To dial a telephone number which does not match any of the programmed destination codes, the user will have to choose a line and dial the number. For long distance dialing to be consistent, all area codes in the North American numbering plan should be programmed as destination codes.



Routing table modifications.

Changes to the routing tables should only be made during least busy call times or on an idle system. Plan to program the routing tables when user activity is at a minimum.

Setting up a route for local calling

An office may have different line pools for local and long distance telephone service. By programming a destination code, any call that begins with 9 (the most common digit for dialing out) will automatically use lines dedicated to local service.

Destination codes cannot conflict with any other digits users may dial as part of a internal or external call. Because 9 is the default digit for external line access, it may have to be changed under Access codes before 9 will be available for use as a destination code.

The first step is to build a route (under **Routing service in Services**).

- enter 001 (or any other available route number) at **Show Route:**
Press **SCAN** to view defined routes.

- enter the DialOut digits (if any) which are needed to direct the call once it is connected to an external line

In this example, simply insert a pause as your DialOut by pressing

Feature . No digits are needed.

- assuming that the lines for local calling have been placed in Line pool A, choose it as the line pool

The second step of programming is setting up how the route will work with a destination code. Because users will dial 9 to make an external call, 9 should be the destination code.

- press ADD Show DstCode:

To view existing destination codes press .

- enter 9 as a new destination code
- press 
- press CHANGE and enter the number of the route that should be used for a call starting with 9. In this example, it's route 001.
- press  and choose how many digits should be removed from the dialing sequence before it reaches an external line. In this example, it's 1.

The initial digit 9 is only significant to the Norstar and should be absorbed in order for the call to proceed successfully in the external telephone network.

The destination code can use a different route depending on the schedule (see the beginning of the Services section and sections on schedules for more information). In the current example, Route 001 is used when someone dials 9 during normal service, but you may want to create another route to be used with the Night schedule.

- press  at Normal rte: to see and change the routes used with this destination code when different schedules are in use.

The following illustrations show the tables used for planning and recording routing service found in the *Programming Record*. They are filled out to match the examples of routes for local and long distance calling.

Page 13

Routing Service (Services: Routing Service)

Route # (001-999)	DialOut (if required) (max. 24 digits or characters)	Use Pool
001	P	A B C
002	P	A B C
		A B C
		A B C
		A B C

Routing service (continued)

Dest code (Services: Routing service: Dest codes)

Service Schedule	Normal		Sched 1		Sched 2		Sched 3	
Sched name (max. 7 char.)	Normal		Night		Evening		Lunch	
DestCode (max. 7 digits)	Use route (001-999)	Absorb Length	Use route (001-999)	Absorb Length	Use route (001-999)	Absorb Length	Use route (001-999)	Absorb Length
9	999 001	All 1	999	All	999	All	999	All
1	999 002	All 0	999	All	999	All	999	All
	999	All	999	All	999	All	999	All
	999	All	999	All	999	All	999	All

Setting up a route for long distance calling

An office may have leased lines which make it cheaper to call long distance. The routing should take place automatically when the number of the outgoing call begins with 1.

Destination codes cannot conflict with any other digits users may dial as part of a internal or external call. Because 9 is the default digit for external line access, it may have to be changed under Access codes before 9 will be available for use as a destination code.

Destination codes cannot conflict with any other digits users may dial as part of a internal or external call. Because 1 is the default digit for the Call Park prefix, it may have to be changed under Access codes before 1 will be available for use as a destination code.

Again, the first step is to define a route (under Services in Routing service).

- enter 002 (or any other available route number) at **Show Route:**
- enter the DialOut digits (if any) which are needed to direct the call once it is connected to an external line

In this example, simply insert a pause as your DialOut by pressing

Feature

7

8

. No digits are needed.

- assuming that the lines for calling long distance have been placed in Line pool B, choose it as the line pool
- press **ADD** at **Show DstCode:**
- enter 1 as the new destination code
- press . The route for normal service appears after: Normal rte:. Press **CHANGE** and enter the defined route number 002.

In this example, the system uses Route 002 (which uses Line pool B) to take advantage of the lower cost when the system is in normal mode.

In the example, the 1 in the destination code is also needed to direct the call in the public network. It should not be absorbed in the routing process.

- press . At **AbsorbLength:** press **CHANGE** until 0 appears.



Tip - If rates change depending on the time of the day or week, a different route can be used for the same destination code 1 when a particular schedule is in use. See "Programming for least cost routing".

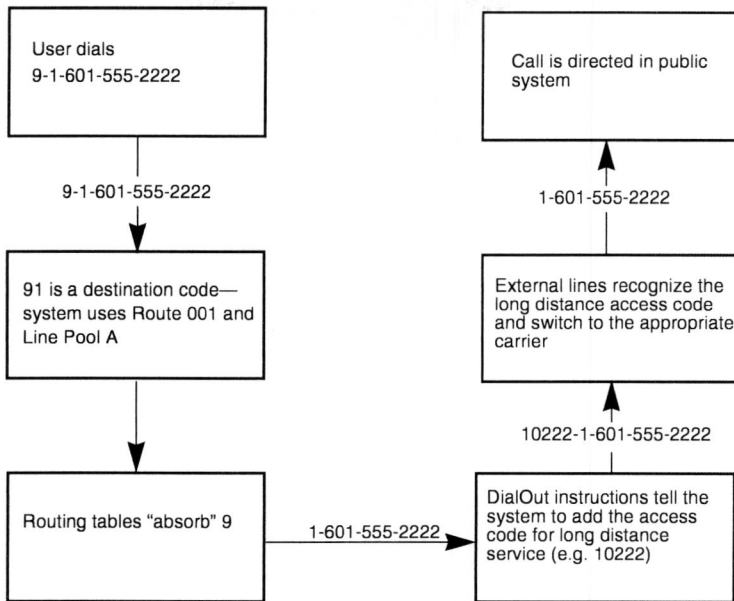
Adding a long distance carrier access code

In many cases, long distance service uses the same lines as local service but is switched to a specific carrier using an access number (sometimes called an equal access code). Programming for routing can include the access number so users don't have to dial it every time they make a long distance call.

- create a route that uses the access number as the DialOut digits
- program the route to use a line pool containing the lines used to access the long distance carrier
- create a destination code 91: 9 (for outside access) and 1 (for long distance)
- set the AbsorbLength to 1: the 9 is used internally and should be dropped; the 1 is needed to direct the call.



Tip - *The destination codes 9 and 91 used in the examples cannot be used together. If the destination code 91 is needed to direct long distance calls, you must create a separate set of codes that use local calling routes. These codes would be, for example, 90, 92, 93, 94, 95, 96, 97, 98 and 99.*



Programming for “least cost routing”

It may be cheaper to use another long distance carrier at another time of day. Continuing with the example used in the flowchart, long distance calls will go out on the same lines without an access code at Night because that is when rates become competitive. For the system to do this automatically, another route has to be built.

- choose Route 007 (or any other available route) at **Show Route:**
- enter a pause for the DialOut sequence by pressing

Feature

7

8
- choose Line pool A (local service carrier lines)

In this case, the change in route uses the start and stop times for the Night schedule (the schedules are set up under **Services programming**).

- enter 91 at **Show DstCode:**
- make sure **AbsorbLength** is set to 1

- the route programmed with the access code as its DialOut (Route 001) remains as the route used by Normal rte:
- under Night rte:, select Route 007

Calls that begin with the digits 91 will now travel out without using the access code when the Night schedule comes into use automatically or when it is turned on at a control telephone.

Night sched

Indicate how the alternate routing should be activated for each of the schedules.

Service

Use , , and CHANGE to change the setting for each schedule: Off, Automatic, or Manual.

See Ringing service in this section for descriptions of the three settings.

Overflow routing

If all the lines used by a route are busy when a call is made, each schedule may be programmed to overflow to the route used for normal service. If this happens, the set will sound a warning tone and display the message **Expensive route**. The caller can then release the call to avoid using the normal route or continue with the call.

Overflow routing is turned on or off for each schedule in programming. Press CHANGE to select the setting: Y (Yes) or **N (No)**.



Tip - *A schedule must be in use for overflow routing to be active. Overflow routing is not available in normal service.*

You must create an overflow route to be used with each destination code. This means every route used with a schedule that has overflow service must have an alternate in normal service.

Using dialing restrictions with routing

Routing service can be further customized by adding dialing restrictions to lines in line pools. Filters restrict the use of the line to specific area codes. See the Benefits section of "Norstar in a network" in this guide and Restrictions under both Terminals&Sets and Lines for more information.



Tip - Host system signalling codes shown in the table can be part of the DialOut for a route.

Feature

Link – if your Norstar system is connected to a private branch exchange (PBX), you can use a Link signal to access special features.

Feature

Pause – Enters a 1.5 second delay in a dialing sequence on an external line.

Feature

Programmed Release – performs same function as in a programmed dialing sequence. When the system encounters Programmed Release in a dialing sequence, it stops dialing and hangs up the call

Feature

Run/Stop – inserts a break point into a sequence of dialed numbers or characters used for automatic dialing.

Feature

Wait for Dial Tone – causes a sequence of numbers to pause until dial tone is present on the line before continuing to dial.

See the *System Coordinator Guide* for more information.

You can also use routing as an alternate method for a direct-dial number. For example, create a destination code 0 and program the number of the internal or external destination as the DialOut. Digit absorption should be set to 1.

Because overflow routing directs calls using alternate line pools, a call may be affected by different line restrictions when it is handled by overflow routing.

Common settings

Services share the settings for control telephones, schedule names and schedule times.

Control sets

A control telephone turns Services on and off for the lines and/or telephones assigned to it. You can assign several control telephones for your system. A control telephone for lines controls Ringing service, Restriction service and Routing service for its assigned lines; a control telephone for telephones controls Restriction service and Routing service for its assigned telephones. Assign a control telephone for each external line and telephone.

Use , **CHANGE**, , and the dial pad to program the internal number of the control telephone for each line and each telephone.



Tip - *External lines and telephones must be programmed with a control telephone to use the three kinds of Services.*

You can assign a control telephone to more than one external line or telephone, but a line or telephone cannot be assigned to more than one control telephone.

One recommendation is to have one control telephone for all lines and a different control telephone for all telephones.

A service can be turned on manually or automatically for all external lines and telephones controlled by a given control telephone, but you cannot combine schedules. In other words, a service can only be active as normal service or one of the six schedules at any one time. You can have several schedules active, as long as they are using different services.

*The default control telephone for all lines and telephones is **21**.*

Schedules names

The schedule name is shown on the display of the control telephone when the schedule is turned on. It identifies the active schedule.

Use , CHANGE, , and the dial pad to program the name.



Tip - *The default names of the six possible schedules are only suggestions and may be changed to any other name.*

A schedule name can be one to seven characters long.

It is recommended that you reserve certain schedules (4, 5, and 6) exclusively for alternate call routing (Routing service).

Schedule times

Schedule start and stop times are set at times you are most likely to want each service to be active.

Use , CHANGE, , and the dial pad to program the start and stop times for each schedule, on each day.

Default schedule times

Schedule	Start time	Stop time
Schedule 1: Night	23:00	07:00
Schedule 2: Evening	17:00	23:00
Schedule 3: Lunch	12:00	13:00
Schedule 4: Sched 4	00:00	00:00
Schedule 5: Sched 5	00:00	00:00
Schedule 6: Sched 6	00:00	00:00



Tip - *It is only necessary to program start and stop times for schedules that are activated automatically. See the instructions with Ringing service for information on activating schedules.*

The time may be entered in either 12 or 24-hour format. If the display is in English, and the hour entered is less than thirteen, the display prompts you to specify AM or PM.

If you assign identical start and stop times for a schedule, for example, 04:00 start and 04:00 stop, the schedule is in effect all day. The only exception to this is a start and stop time of 00:00; in this case the schedule is off for the day.

You may assign overlapping times. For example, if schedule 1 is assigned from 9:00 am to 4:00 pm and schedule 2 is assigned from 1:00 pm to 5:00 pm, then the start time of the second schedule is treated as a stop time for the first schedule. This is also true if two schedules have the same start time but different stop times; the stop time of the shorter schedule is treated as the start time of the longer schedule.

If one schedule starts and stops within the times of another schedule, the first service temporarily ends when the second service starts. The first service then resumes when the second service has ended.

Some schedules start and stop at the same times each day: use COPY to copy the start and stop times from one day to the next.



Start and stop times don't span days.

When you program a schedule to start in the evening and stop in the morning, it does not carry over into the next day. For example, if you program Night service for Friday (22 00 to 6 00), the system turns on Night service from midnight to 6 am on Friday, and then again from 10 pm to midnight on Friday.

Sys speed dial

System speed dial lets you create speed dial codes that can be used by any telephone in the system.

For more information on using and programming System speed dial, see the *System Coordinator Guide*.

Passwords

COS pswds

Class of Service (COS) passwords permit controlled access to a system's resources by both internal and remote users. When you enter a Class of Service password at a telephone, the restriction filters associated with your Class of Service password apply instead of the normal restriction filters. Similarly, when a remote user enters a Class of Service password on an incoming auto-answer line, the restriction filters and remote package associated with their Class of Service password apply instead of the normal restriction filters and remote package.

COS passwords lets you define individual passwords and determine the restriction filters and remote package associated with each.



Tip - *Class of Service passwords for a system should be determined randomly and should be changed on a regular basis.*

Users should memorize their COS passwords instead of writing them down.

Employees' COS passwords should be deleted when they leave the company.

Typically, each user has a separate password. Alternately, several users can share a password or one user can have several passwords.

A system can have a maximum of 100 six-digit COS passwords (00 to 99).

You can use COPY and the dial pad to copy the restriction filters and remote package from one COS password to another. COS passwords must be unique.

Pswd

Pswd defines the six-digit Class of Service password. There is no default password.

Use , CHANGE, and the dial pad to program the six-digit password. Use BKSP to edit numbers you have entered.

User flt

User filter lets you assign a restriction filter to a Class of Service password. The user filter associated with the Class of Service password replaces any normally applicable set restriction, line/set restriction, and remote restriction.

Use , CHANGE, and the dial pad to program the two-digit user filter. The default setting (**None**), means that any normally applicable filters (set restriction, line/set restriction, or remote restriction) still apply.

Line flt

Line filter lets you assign a specific line restriction to a Class of Service password. The line filter associated with the Class of Service password replaces any normally applicable line restriction.

Use CHANGE and the dial pad to program the two-digit line filter. The default setting (**None**), means that any normally applicable line filter still applies.

Remote pkg

Remote pkg lets you assign a specific remote access package to a Class of Service password. The remote access package associated with the Class of Service password replaces any normally applicable remote access package.

Use CHANGE and the dial pad to program the two-digit remote package. The default setting (**None**), means that any normally applicable remote access package still applies.

Call log pswds

Log password allows you to override any Call log password programmed with the Call log feature, and resets it to **None**. It is used when someone forgets a password.

Press  and enter the DN of the telephone.

Press  to clear the programmed password.



Tip - You program a Call log password using the Call log Password feature. See the Telephone Feature Card or the System Coordinator Guide for more information.

Programming pswds

You can choose any combination of six digits for Passwords. It is easier to remember the password if the digits spell a word.

Provide passwords only to selected personnel to prevent unauthorized access to programming. Some passwords allow line assignments to be rearranged, which could disrupt your telephone service.



Installer

Installer password required

The default Installer password is **266344 (CONFIG)**.

Use CHANGE, the dial pad, and OK to program the Installer password.

Record the password in the *Programming Record*.

SysCoord+

The default System Coordinator Plus password is **727587 (SCPLUS)**.

Use CHANGE, the dial pad, and OK to program the System Coordinator Plus password.



Tip - *An overview of what programming is available by using the System Coordinator Plus password is on page 57.*

SysCoord

The default System Coordinator password is **23646 (ADMIN)**.

Basic

The default Basic password is **22742 (BASIC)**.



Tip - *For more information about the System Coordinator and Basic passwords, see the System Coordinator Guide.*

IRAD pswd

The ability to do remote programming using the internal remote access device (I-RAD) is protected by a password. The I-RAD is not available until you enter Software Keys provided by Northern Telecom.

Use CHANGE, the dial pad, and OK to change the I-RAD password. Currently, the remote administration software used with the I-RAD allows you to use a password up to ten digits long. A longer password will not work with the software. The default password is the eight-digit Sys ID number.

Your I-RAD password should always match the password used with your Remote Set Application software.

Time&Date

The time and date shown on the telephone display is used by the system for scheduled features. It can be changed in programming or by using a feature code (* * T I M E or

* * 8 4 6 3).

For more information, see the *System Coordinator Guide*.

System prgming

System prgming allows you to set up features and settings which are not associated with any specific line or telephone.

Change DN



Installer password required

Change DN allows you to change the directory number (DN) or internal number of a telephone.



Changing DN locks programming session

Changing an individual DN locks the programming session into the Change DN programming mode. After you have finished and have pressed **[Ris]**, re-enter the programming access code and the Installer password to continue with other programming.

Do not perform Startup again or all previous programming will be erased.

Use **[⇒]** and the dial pad to identify the DN you want to change ("old DN"). Then, use the dial pad to enter the new DN.



Tip - No DN changes occur until the programming session ends.

If the "new DN" already exists for another telephone, that other telephone is given the "old DN".

All DNs must be the same length.

The first digit of a new DN cannot be the same as the first digit of: an external line access code; a line pool access code; the Park prefix; the direct-dial digit. To avoid a conflict, refer to the table of default settings provided under Access codes. The lowest default DN is 21.

Featr settings

Backgrnd music

Background music allows you to listen to music through your telephone speaker. A music source must be connected to the ICS. Press CHANGE to select the setting: **N** (No) or **Y** (Yes).

On hold

On hold allows you to choose what a caller hears on an external line when the line has been put on hold. Press CHANGE to select the setting: **Tones**, **Music**, or **Silence**.

- Tones provides a periodic tone.
- Music provides any signal from a source such as a radio connected to the ICS.
- Silence provides no audio feedback.

Receiver volume

Receiver volume allows you to specify whether the volume level of a receiver or headset will return to the system default level when a call is ended or put on hold, or whether it will remain at the level set at the individual telephone.

Use  and CHANGE to select the setting: **Use sys volume** or **Use set volume**.



Tip - *This feature is not available on some older telephones.*

Camp timeout

Camp timeout delay allows you to assign the number of seconds before an unanswered camped call is returned to the telephone which camped the call. Press CHANGE to select the setting: 30, **45**, 60, 90, 120, 150, or 180 seconds.

Park timeout

Park timeout delay allows you to assign the number of seconds before a parked call on an external line returns to the originating telephone. Press CHANGE to select the setting: 30, **45**, 60, 90, 120, 150, 180, 300, or 600 seconds.

Trnsfr Callbck

Transfer Callback delay allows you to specify the number of rings before a Callback occurs on a transferred call. Press CHANGE to select the setting: **3**, 4, 5, 6, or 12 rings.



Tip - You can estimate the delay in seconds if you multiply the number of rings by six.



DRT to prime

Installer password required

Delayed Ring Transfer (DRT) automatically forwards unanswered external calls to a prime telephone, after a certain period of time. This helps ensure that no external call goes unanswered. Press CHANGE to select the setting: **Y** (Yes) or **N** (No).



Tip - An operational prime telephone must be assigned before this feature can operate. A prime telephone is assigned to one or more external lines under Lines in Trunk/Line data.

DRT delay

DRT delay allows you to specify the number of rings before DRT transfers a call to a prime telephone. Press CHANGE to select the setting: 1, 2, **3**, 4, 6, or 10 rings.



Tip - *The DRT delay can be programmed only if DRT to prime is set to Yes.*

You can estimate the delay in seconds if you multiply the number of rings by six.

Held reminder

When active, Held Line Reminder reminds you that a call at your telephone is still on hold. You periodically hear two tones from your telephone until you return to the call on hold. Press CHANGE to select the setting: **N** (No) or **Y** (Yes).

Remind delay

Held Line Reminder delay allows you to choose the number of seconds before the Held Line Reminder feature begins at a telephone that has an external call on hold. Press CHANGE to select the setting: 30, **60**, 90, 120, 150, or 180 seconds.



Tip - *The Held Line Reminder delay can be programmed only if Held Line Reminder is activated.*

Directd pickup

Directed pickup allows you to answer any calls by specifying the ringing telephone's internal number. Press CHANGE to select the setting: **Y** (Yes) or **N** (No).



Tip - *Directed pickup is not to be confused with the Call Pickup Group feature, which allows you to answer a call at any telephone within a specific group without specifying the internal number of the ringing telephone.*

Like Call Pickup Group, Directed pickup is useful when not all the telephones have been assigned the same lines, but you still want to allow your co-workers to answer a call on any external line from their telephones.

Page Tone

You can choose whether a tone sounds before a page begins. Press CHANGE to select the setting: **Y** (Yes) or **N** (No).

Page Timeout

The paging feature is automatically disconnected after a set length of time. Press CHANGE to select the maximum number of seconds needed for a page: 15, 30, 60, 120, 180, 300, 600, **2700**.

Daylight time

When this feature is turned on, the system will automatically switch between standard time and daylight saving time. Press CHANGE, to select the setting: **Y** (Yes) or **N** (No).



Tip - *The time falls back one hour on the last Sunday of October at 2:00 am., and advances one hour on the first Sunday of April at 2:00 am. This function should only be programmed by your installer.*

In areas where daylight saving time is not observed (for example, Saskatchewan), make sure this setting is changed to N (No).

Call log space

Call log space programming customizes how log space is allocated to telephones in the system

Reset all logs?

Reset all logs allows you to re-allocate the Call log space equally to all telephones in your system.

Press YES and use the dial pad to enter the space allocation for the Call log at each telephone. You must use a three-digit number (for example, 020 to give each set 20 spaces).

Press YES to accept the settings and end programming. The system automatically re-allocates Log space.



Tip - Use this heading only if you want to allocate an equal amount of log space to all the telephones in your system. If you want to assign specific amounts of log space to individual telephones, see the information under *Terminals&Sets* in the *System Coordinator Guide*.

Re-allocating Call log space may destroy Call log data at telephones that lose space.

*There are 250 Call log spaces available in the system. There are no spaces allocated by default. Changing the space allocation using Log Defaults defines the log space available to all telephones in the system. Any remaining unassigned log space is available in a log pool, and can be re-allocated under *Terminals&Sets* in Telco features.*

Host delay



Installer password required

Host delay lets you assign the delay between the moment an outgoing line is selected to make an external call (by lifting the receiver off the telephone, for example) and the moment that Norstar sends dialed digits or codes on the line. Press CHANGE to select the setting: 200, 400, 600, 800, **1000**, 1200, 1400, 1600, 1800, or 2000 milliseconds.



Tip - Host delay is provided to ensure that a dial tone is present before the dialing sequence is sent. Minimizing this delay provides faster access to the requested features.

To calculate the precise delay between initiating the call and when the first digit is dialed, add 500 milliseconds to the setting. This will account for time used to set-up the call.

Link time



Installer password required

Link time allows you to specify the duration of a signal required to access a feature through a remote system. Press CHANGE to select the setting: 100, 200, 300, 400, 500, **600**, 700, 800, 900, or 1000 milliseconds.

For example, to program external dialing through a Centrex system, which requires a Link time of 400 ms, specify a Link time of 400.



Tip - *The correct Link time setting depends on the requirements of the host switching system you wish to access.*

Link is another name for recall or flash.

Alarm set

Alarm telephone allows you to assign a telephone on which alarm messages appear when a problem has been detected in the system. Use CHANGE and the dial pad to enter the internal number of the Alarm telephone. Press CLR to set the Alarm telephone to None. The default setting is **21**.

Set relocation

Telephone relocation allows you to move any telephone to a new location within the Norstar system without losing the directory number, autodial settings, user speed dial codes, and any system programming for that telephone. Press CHANGE to select the setting: **N** (No) and **Y** (Yes).



Tip - *It is a good idea to activate Telephone relocation after the telephone installation and programming has been done. This will give you more flexibility when you are testing equipment.*

If this feature is deactivated while a telephone is moved, that telephone's internal number and programming data remain with the physical port on the ICS, and the telephone does not receive the original programming when it is reconnected elsewhere.

Direct-Dial

Direct-dial lets you dial a designated telephone with a single digit. The direct-dial telephone can be inside the Norstar system or it can be outside the system in the public network. The direct-dial telephone is usually assigned to a receptionist for an entire office or for a particular department.

D-Dial1

For the direct-dial telephone, indicate whether it is an internal or external number.

Use  and CHANGE to select the setting: **Intrnl**, **Extrnl**, or **None**.

Number

Enter the internal or external number that the system will automatically dial when someone enters the direct-dial digit.

Use , CHANGE, and the dial pad to enter the telephone number. The default number for the direct-dial telephone is **21**.

Line selection

If you assign an external number as a direct-dial telephone, you must indicate which line to use for the call.

Use , CHANGE, and the dial pad to select the line for the external number.



Tip - *There is just one direct-dial digit for the entire system.*

The Norstar system cannot verify that the number you assign as an external direct-dial telephone is valid. Check the number before assigning it as a direct-dial telephone, and call the direct-dial telephone after you've assigned it in order to test it.

You cannot forward calls to any direct-dial telephone that is outside your Norstar system. See Call Forward in the System Coordinator Guide.

CAP assignment



Installer password required

This setting designates a telephone as a central answering position (CAP). The CAP must be an M7324 telephone, and have a CAP module attached. The default CAP assignment is **None**.

The CAP may be used to:

- monitor the busy/not busy and Do Not Disturb status of Norstar telephones
- answer external calls and extend calls to other Norstar telephones
- send up to 30 messages to other Norstar telephones
- provide up to 48 extra memory buttons for the M7324 telephone

Use , CHANGE and the dial pad to enter the internal number of the M7324 telephone to be designated as a CAP. The set must be installed before you make it the CAP.



Tip - *If a CAP module is attached to a M7324 telephone that has not been programmed as a CAP, you will not be able to move line buttons onto the CAP module. The CAP will still be associated with the M7324 and have some default programming.*

If a CAP module is relocated with the M7324 telephone, the settings are retained.

You can reset a CAP module by simultaneously pressing the two buttons on the bottom left-hand side and the two buttons on the bottom right-hand side. This must be done immediately after the module has been plugged in. Performing Startup will not erase CAP programming.

Access codes

Access codes are used by the system to direct calls to the correct lines and destinations. If the codes conflict, some of the features on the system will not work. The table of default settings can help you plan your access codes so there are no conflicts.

Digits assigned by default to programming settings

Digit	Use	Heading
0	direct-dial digit	Access codes
1	Park prefix	Access codes
2	the first digit of B1 DNs	Startup
9	external line access code	Access codes
— —	line pool access code (Not assigned by default, but takes precedence over the External Line access code if there is a conflict.)	Access codes
— —	destination code	Services

Line pool codes



Installer password required

This setting allows you to assign a line pool access code for each of the three line pools (A to C). These codes are used to specify the line pool you wish to use for making an outgoing external call.

Use , **CHANGE**, the dial pad, and **OK** to program the access code. The default access code is **None**.



Tip - *The code can be one to four digits in length. Line pool access codes starting with the same digit must be the same length.*

A line pool access code can be the same as an external line access code. In this case, the line pool access code takes priority over the external line access code, and a line from the line pool is selected.

A line pool access code cannot conflict with: the Park prefix, the direct-dial digit; the first digit of any Received number; the first digit of any DN (including the Auto DN or the DISA DN).

Park prefix



Installer password required

The Park prefix is the first digit of the call park retrieval code that must be entered to retrieve a parked call. If the Park prefix is set to None, calls cannot be parked. Press CHANGE to select the setting: 1 to 9, None, or 0.



Tip - *The Park prefix cannot be the same as the direct-dial digit, the external line access code, the first digit of a DN, the first digit of a line pool access code, or the first digit of a destination code.*

Other programmable settings may affect which numbers appear on the display during programming. Although the numbers 0 to 9 are valid Park prefix settings, some may have been already assigned elsewhere by default or by programming changes.

If DN length is changed, and the changed DNs conflict with the Park prefix, the setting changes to None.

External code



Installer password required

External code allows you to assign the external line access code. This code is used to allow M7100 telephones and Analog Terminal Adapters (ATA) to access external lines.

Use CHANGE to select the setting: 1 to 9, None, or 0.



Tip - *The external line access code cannot conflict with the Park prefix, the direct-dial digit, the first digit of a line pool access code, the first digit of a DN, or the first digit of a destination code.*

If DN length is changed, and the changed DNs conflict with the external line access code, the setting changes to None.

Direct-dial



Installer password required

Direct-dial digit allows you to dial a single system-wide digit that can be used to call a specific telephone, called a direct-dial telephone. Press CHANGE to select the setting: 1 to 9, None, or 0.



Tip - *Another direct-dial telephone, an extra-dial telephone, can be assigned for each schedule in Services programming.*

The direct-dial digit cannot be the same as the first digit of a DN, of a line pool access code, the external line access code or the Call Park prefix. It cannot be the first digit of a destination code.

If DN length is changed, and the changed DNs conflict with the direct-dial digit, the setting changes to N.

Auto DN



Installer password required

For calls answered without DISA, no password is required to access the Norstar system. The Class of Service (COS) that applies to the call is determined by the COS for the trunk on which the user is calling. Use CHANGE and the dial pad to enter the digits to be received from the auto-answer trunk.

Press CLR to set the Auto DN back to **None**.



Tip - *The length of the Auto DN is the same as the Rec'd # length specified in System prgming. The Auto DN is cleared if the Received number length is changed.*

The Auto DN cannot be the same as a line pool access code or a destination code.

DISA DN



Installer password required

For calls answered with DISA, the system presents a stuttered dial tone to prompt a caller to enter a valid password. The Class of Service (COS) that applies to the call is determined by this COS password.

Once a remote user is on the Norstar system, the DISA DN can be used to change the existing Class of Service. This allows greater flexibility when you create access privileges. For example, you may want to have a shared DISA DN for remote access and separate COS passwords with different dialing out privileges for individuals.

Use CHANGE and the dial pad to enter the digits to be received from the auto-answer trunk. Press CLR to set the DISA DN to **None**.



Tip - The length of the DISA DN is the same as the Rec'd # length specified in System prgming. The DISA DN is cleared if the Received number length is changed.

The DISA DN cannot be the same as a line pool access code or a destination code.

Auto Attendant

Two of the settings for Auto Attendant, Auto Attend and CCR lines, are programmed using an Installer or System Coordinator Plus password.

Auto Attend

This setting makes the Auto Attendant features (System Answer and Custom Call Routing) available to the system. System Answer automatically responds to unanswered calls at the attendant set and puts them on hold until they can be retrieved. Custom Call Routing allows callers to direct their call using an audio menu.

Use CHANGE to toggle the setting: ON or **OFF**.



Tip - If a peripheral auto attendant or Custom Call Routing device is used with the system, turn the setting to OFF.

CCR

Custom Call Routing (CCR) allows calls on certain lines to be directed to a telephone or group of telephones according to a numbered menu offered to a caller.

CCR lines

Press  and CHANGE to choose which lines will be answered by the CCR feature. The options are YES and **NO**. There is no limit to the number of lines that can be monitored by CCR.

Additional programming can be done using the System Coordinator password (defaults are given in bold):

Setting	Description	Options
Attd Set	Select the set which will have its lines answered by System Answer.	Enter DN 21
Language	Select the language or languages used for the pre-recorded announcements.	
•First	Select the first language.	English , French or Spanish
•Second	Select the second language, if applicable.	(one of the remaining options) None
System Answer	This feature answers external calls and places them on hold at the attendant set until the attendant/receptionist can answer them.	
•After	Select the number of rings that the caller will hear before the system answers.	between 2 and 12 rings (3)
CCR	Custom Call Routing(CCR) allows calls on certain lines to be directed to groups of telephones according to the instructions from the caller.	
•After	Select the number of rings that the caller will hear before the system answers.	between 2 and 12 rings(3)
•CCR groups	Create groups of DNs to be used with the CCR.	
••CCR group <i>n</i>	Enter the number of the group, then enter the DN of the set that you want to assign to the group.	CCR groups 1-9 (no DNs assigned by default)

See the *System Coordinator Guide* for complete information on programming Auto Attendant features.

Remote access

Remote access packages allow you to control the remote use of Norstar line pools and the paging feature. Packages are also used to control remote administration and monitoring of the system.

You create a remote access package by defining which of your system's line pools it will be able to access and whether it can use Page, line pools and remote administration. You then assign the package to individual lines (using Rem line access), and to a particular Class of Service password (Remote pkg in COS passwords).

Remote access pkgs

Use  and the dial pad to select the remote access package you want to program.

LinePool access

Press CHANGE to select the line pool access setting for each pool:
N (No) or **Y** (Yes).

Remote page

Press CHANGE to select the Remote page setting: **N** (No) or **Y** (Yes).

Remote admin

Press CHANGE to select the Remote administration setting: **N** (No) or **Y** (Yes).

Remote monitor

Press CHANGE to select the Remote monitor setting: **N** (No) or **Y** (Yes).

Rem line access

Enter the number of the line which will be accessible by remote users.

L001 Rem pkg

Press CHANGE and enter the number of the remote access package that will apply to remote use of the line.

Remote access packages defaults

Parameter	Square	PBX	Hybrid	
Package 00	Prohibits remote access to line pools, Page, remote monitoring and administration. Cannot be changed.			
Package 01				
Line pool access	Y for Pool A	N for Pools B and C		
Remote Page, administration and monitoring	No			
Packages 02 - 15				
Line pool access	N for Pools A to C			
Remote Page, administration and monitoring	No			



Tip - You can use COPY and the dial pad to copy settings from one remote package to another.

The line pool access display shows an alphabetic line pool identifier, followed by a numeric line pool access code in brackets, for example, PoolA (9):N. If no access code has been identified, there is nothing between the brackets, for example PoolA < >:N. The line pool access code can be programmed under Terminals&Sets.

Remote package 00 is the default setting for the Remote package setting. It permits no access to line pools or to remote paging. Unlike packages 01 to 15, package 00 cannot be changed.

You can define up to 15 remote access packages (01 to 15).

For remote users who call into the Norstar system to use Norstar lines for calling out, the remote restrictions and line restrictions still apply.

To use features on a Norstar system remotely, press ☐ followed by the feature code. Even if you are calling from another Norstar system, press ☐ instead of .

Rec'd # length



Installer password required

The Received number length setting allows you to change the number of digits received on auto-answer trunks. These digits are used to identify Auto DNs and DISA DNs. Press CHANGE to select the setting: 2, 3, 4, 5, 6, or 7. Then, press ☐ to go ahead with the change.



Tip - *The Received number length may be the same as the system DN length, or may, because of network or central office constraints, be set to some other value.*

Changing the Received number length causes all programmed received digits to be cleared.

DN length



Installer password required

This feature allows you to change the number of digits for all DNs. The maximum length is seven. The default and minimum length is 2.

1. Press CHANGE to select the setting: 2, 3, 4, 5, 6, or 7.
2. Press ☐ to save the new DN length. The display reads **Drop data calls?**

3. Press YES to save the new DN length. NO restores the original value.



Do not change DN length immediately after a system startup.

You must wait for at least two minutes after a system startup before you change the DN length.



Data devices will drop calls.

Data devices drop calls when the DN length is changed. (Data devices use the B2 channel. The M7100, M7208, M7310, and M7324 telephones use the B1 channel. Calls are **not** dropped for these telephones.)

The DN length change is completed within two minutes, depending on the size of the installed Norstar system. System response may briefly slow down during this time. You cannot re-enter programming during this time. If you enter the programming access code, the message **In use: SYSTEM** appears on the display.



Tip - A DN length change, if required, should be the first programming change on a newly installed Norstar system.

Each increase in length places the digit 2 in front of any existing DN. For example, if DN 34 was increased to a length of 4, the new DN would be 2234.

If the DN length is changed so that a conflict is created with the Park prefix, external line access code, direct-dial digit, or any line pool access code, the setting for the prefix or code is changed to None, and the corresponding feature is disabled.

Telco features

VMsg centr tel#s

If you subscribe to a voice message service outside your office, you can access it through your Norstar system. This setting specifies the external telephone numbers that are dialed by the Message feature to retrieve voice messages. Use , , CHANGE, and the dial pad to enter the external number.

The default for each voice message center is **No number**.



Tip - *A telephone does not show that external voice messages are waiting unless Extl VMsg set is set to Yes. The setting is in CLASS assignment under Terminals&Sets.*

You can program up to five voice message center numbers, but most systems require only one.

Software Keys

In order to upgrade a 4x8 Feature Cartridge or enable the Remote Administration feature, you must first purchase an upgrade kit from Northern Telecom.

The kit has detailed instructions on how to use Northern Telecom's interactive voice response system to get your unique software keys. The system will ask you to provide your System ID, the authorization code that comes with your kit, and some general information about your system. The kit also contains detailed instructions on how to use the keys to enable a configuration upgrade or enable the Remote Administration feature.

Entering the keys is done using the following programming settings under Software Keys.

SysID

Press  at Software Keys. The display reads **SysID:** followed by the eight-digit System ID Number.

Password Keys

Press  and enter the eight-digit password number for Key 1. Use BKSP to make corrections.

Enter the next two keys in the same way.

If you are upgrading a 4x8 configuration, you will have to tell the system to go ahead with a restart. Entering the software keys will have no effect unless you perform the system restart.



Tip - *You will not know if the software keys are being entered successfully until all of the eight-digit numbers have been entered. You will see the numbers on the screen as you enter them and be able to make corrections.*

You must assign a remote access package which allows remote administration to an incoming line before you can use the I-RAD.

Record the codes in the *Programming Record*. You will need the codes to restore the upgrade should a cold start occur.

Hardware

Hardware is where you view and change the settings for the Trunk Cartridges installed in the ICS.

TC1 on KSU



Installer password required

Press  to display the type of Trunk Cartridge in the ICS.

TC type

Loop is the default setting used for Loop Start and Call Information (CI) Trunk Cartridges.

Because Compact ICS uses only Loop Start and Call Information (CI) cartridges, you cannot change this setting.



Tip - *The Trunk Cartridge slots in the ICS are numbered from left to right.*

Lines



Installer password required

Press  to display the line numbered range for the lines on the Trunk Cartridge.

If your system is using a 4x8 Feature Cartridge that has not been upgraded, you will only see settings for TC1 on KSU.

	Line numbers for Loop start
TC1 on KSU	001-004
TC2 on KSU	005-008

Because Compact ICS uses only Loop Start and Call Information (CI) cartridges, you cannot change this setting.

Discon timer



Installer password required

Disconnect timer allows you to specify the duration of an open switch interval (OSI) before a call on a supervised external line is considered disconnected. Press CHANGE to select the setting: 60, 100, 260, **460**, or 600 milliseconds.



Tip - *Disconnect Supervision is assigned to each line with the Trunk mode setting in Trunk/Line data under Lines (see page 102).*

This setting must match the setting for the line at the central office.

Applying button cap labels

Before you apply button labels, activate the Button Inquiry feature (Feature) to verify the button functions and to avoid activating features as you put the labels onto the buttons.

Keep the extra labels and button caps with each Norstar telephone or leave them with the system coordinator.

Types of button caps

- **Unlabeled, clear button caps**
with appropriate green or grey paper for typing in line numbers, telephone numbers, and features
- **Pre-printed, colored button caps**
in green or grey

Some examples of pre-printed button caps

Green caps	Grey caps
Line 1	Last No.
Handsfree
Mute	Speed Dial

Identifying the telephones

1. Write the individual telephone numbers on the labels and attach them to the appropriate Norstar telephones.
2. Write the telephone number and the internal number on the appropriate receiver card for each type and color of telephone that is to be installed.
3. Cover the receiver card underneath the receiver of each telephone with the plastic lens.

Norstar default button assignments

Default features are assigned automatically to the programmable buttons on Norstar telephones and vary depending on the telephone. The default features are listed in the tables in this chapter.

Rules of default button assignment

Line and intercom buttons are assigned by default templates and can be changed in programming. Handsfree/Mute and Answer buttons are not assigned by default. If these features are defined, however, they are automatically assigned to specific buttons, as described on this and the following page. None of these buttons can be assigned to M7100 telephones.

The Handsfree/Mute feature appears on the bottom right-hand button (the bottom button on the M7208 telephone), moving the Intercom button(s) up one position.

Each telephone can have up to eight Intercom buttons. They appear above the Handsfree/Mute button at the bottom right-hand position on your telephone (the bottom button on the M7208 telephone).

Each telephone can have up to four Answer buttons. They appear above Intercom buttons in the right column and continue up from the bottom in the left column, replacing the features on those buttons. (On the M7208 telephone, Answer buttons appear above Intercom buttons and below external line buttons in a single column.)

External line buttons appear in ascending line order, starting at the top button in the left column (the top button on the M7208 telephone). If more than five external lines are assigned to an M7310 telephone assignment continues down the buttons on the right column, erasing the features on those buttons. Line buttons have priority over feature access buttons but not Handsfree/Mute, Intercom, or Answer buttons.

M7100 telephone button defaults

For for the default template, the one programmable button on the M7100 telephone is .

M7208 telephone button defaults

Pick-Up

Transfer

Last No.

Page

Conf/Trans

Speed Dial

Intercom

Intercom



Tip - The default Page button activates the General Page option (Feature).

M7310 telephone button defaults

Dual-memory buttons

Set 33

Set 37

Set 41

Set 21

Set 25

Set 29

Set 34

Set 38

Set 42

Set 22

Set 26

Set 30

Set 35

Set 39

Set 43

Set 23

Set 27

Set 31

Set 36

Set 40

Set 44

Set 24

Set 28

Set 32

This example shows defaults for a system with two-digit internal numbers.

The defaults shown for the dual-memory buttons do not actually exist on any telephone, since no telephone has an autodial button for itself. The position that would be taken by the autodial button for itself is blank.

Template button assignments

DND	Conf/Trans
Transfer	Last No.
Call Fwd	Voice Call
Pick-Up	Intercom
Page	Intercom

M7324 telephone button defaults

Buttons without a label are blank by default and can be programmed as autodial or feature buttons.

	Call Fwd
	Speed Dial
	Last No.
	Saved No.
	Conf/Trans
	Transfer
	DND
	Pick-Up
	Voice Call
	Page
	Intercom
	Intercom

I-RAD

The ability to do remote programming using the internal remote access device (I-RAD) is not available until you enter Software Keys provided by Northern Telecom. For more information about enabling the feature, see Software Keys on page 156.

Remote administration for the Compact ICS is done using Remote Set Software from Northern Telecom. A personal computer (PC) equipped with the software can connect with the I-RAD using one of the following methods when Remote Administration is enabled, using when is not available:

- call the system on an auto-answer line and enter the Remote Administration feature code ().
- call the system using an Auto Attendant feature, enter the DISA DN and appropriate COS password or the Auto DN. You can then enter the the Remote Administration feature code ().
- call someone on the Norstar system and have him or her enter the feature code which transfers your call to the I-RAD ().



Tip - You must assign a remote access package which allows remote administration to an incoming line before you can use the I-RAD.

When you transfer someone calling on a telephone to the I-RAD, he or she will hear a high-pitch modem tone. This is a good way to test your I-RAD set-up without a computer.

If you have not already enabled Remote Administration or configured your system, the only method of access will be the transfer to IRAD feature code (). Once you have been transferred, the only programming heading available to you is Software Keys, which will allow you to enable the feature remotely.

You will still need to enter the Installer password to begin a remote programming session (* * 2 6 6 3 4 4), and the Remote Set Software will ask you for your system's I-RAD password. In addition, you will have to create an appropriate remote access package for remote administration. See the Programming chapter for more information.

The I-RAD does not support dialing out alarms.

Testing

After your system has been installed and programmed, test it to verify that the equipment is functioning properly.

- ☐ Verify all wiring and connections to make sure they are correct and secure.
- ☐ Use Module status in Maintenance to verify that all modules are enabled.
- ☐ Use Port/DN status in Maintenance to verify that all devices and lines are enabled and idle.
- ☐ Test each Norstar telephone by placing a call, verifying the quality and clarity of all connections, checking the indicators, and programming and using a memory button.
- ☐ Test the I-ATA by placing a call to the analog device connected to the I-ATA port. Verify that the device detects ringing. Verify the quality and clarity of the connection. Place a call from the device to verify dialing.
- ☐ Test each external line by placing a call and verifying the quality and clarity of the connection.
- ☐ Use the procedures in the user cards or installation documentation to test all optional equipment, which may include peripherals
- ☐ If you have programmed any of these Norstar features, test them.
 - Routing
 - System Speed Dial
 - Restriction filters
 - Class of Service
 - Services

Troubleshooting

These troubleshooting procedures allow you to solve many problems in the Norstar system. Follow these procedures before replacing any components.



Only qualified persons should service system.

The installation and service of this unit is to be performed only by service personnel having appropriate training and experience necessary to be aware of hazards to which they are exposed in performing a task and of measures to minimize the danger to themselves or other persons.

Electrical shock hazards from the telecommunication network and AC mains are possible with this equipment. To minimize risk to service personnel and users, the ICS must be connected to an outlet with a third-wire ground. In addition, all unused slots must have filler faceplates installed and the system door must be locked in place at the completion of any servicing.

Service personnel must be alert to the possibility of high leakage currents becoming available on metal system surfaces during power line fault events near network lines. Risk points on the ICS are the Feature Cartridge, heatsink and power cord earth ground pin. These leakage currents normally safely flow to Protective Earth ground via the power cord. Therefore, it is mandatory that connection to an earthed outlet is performed first and removed last when cabling to the unit. Specifically, operations requiring the unit to be powered down must have the network connections (central office lines) removed first.

Where more than one procedure is given, you should select just one.

Getting ready

Before you begin troubleshooting, gather all the information that is relevant to your network configuration. These are:

- the *Programming Record*
- records from people who use the network
- information about other hardware and non-Norstar features within the public or private network



Tip - Remember that you can check many of the system parameters without having to go into a programming session.

- Use Button Inquiry (*) to check the buttons on a particular telephone.

Types of problems

The problems you encounter will likely fall into one of the following categories.

Misunderstanding of a feature

A problem may be reported because a Norstar user is unfamiliar with the operation of a given feature. You may be able to solve the problem simply by demonstrating how to use the feature correctly.

Programming errors

You may encounter problems caused by errors in programming. A feature may have been programmed incorrectly or may not have been programmed at all.

Wiring connections

Wiring problems are caused by loose, unconnected, or incorrect wiring. Use the procedures in the section on Checking the hardware as a guide.

Equipment defects

You may encounter problems caused by Norstar equipment defects. See the appropriate section for problems related to the system hardware.

General troubleshooting procedure

1. Diagnose the trouble by determining:
 - the types of problems users have experienced
 - the frequency of the problems
 - how many telephones are affected
2. Check how a feature is being used. A problem may have been reported because of a misunderstanding about how a feature works. Confirm that the person who reported a problem understands the intended use and operation of any feature in question.
3. Check for programming errors. Check that the programming recorded in the *Programming Record* is correct for the intended operation of the system, and verify that this programming has been correctly entered.
4. Run a Station set test (). Instructions are included in the *System Coordinator Guide*.
5. Check the wiring and hardware connections.
6. If the problem persists, run a Maintenance session as described in the Maintenance chapter.
7. If hardware is defective, replace it. If the trouble requires expert advice, follow your company's procedure for obtaining assistance.

Problems with telephones

Norstar telephone has faulty buttons, display, handset or other hardware problems

1. Run a Station Set Test (). Instructions are included in the *System Coordinator Guide*.

Norstar telephone display unreadable

If the trouble is with an M7310 or an M7324 telephone:

1. Press * .
2. Press UP or DOWN to adjust the display to the desired level.
3. Press OK.



Tip - *The number of contrast settings varies with the model of telephone.*

If the trouble is with an M7100 or M7208 telephone:

1. Press * .
2. Press a number on the dial pad to adjust the display to the desired level.
3. Press .

If the display is still unreadable:

1. Go into Maintenance in programming and disable the problem telephone.
2. Replace the problem telephone with a known working one.
3. Enable the working telephone.

Norstar telephone dead

1. Run a Station Set Test (). Instructions are included in the *System Coordinator Guide*.
2. If more than one telephone is affected, refer to the ICS down section on page 186.
3. Check for dial tone.
4. Check the display.

5. If the problem persists, replace the telephone with a known working Norstar telephone of the same type (so that the programming is retained).
6. Check the internal wiring at both the modular jack and the distribution cross-connect. A Norstar telephone port should have between 15 and 26 V DC across the Tip and Ring when the telephone is disconnected.
7. Run a bit error rate test (BERT). Instructions begin on page 220.
8. Check the line cord.

Running a Maintenance session to test a dead telephone

1. Run a Maintenance session to ensure that the telephone is not disabled. (See Port/DN status in the Maintenance chapter.)
2. Disable the port that the telephone is connected to using the heading Port/DN status.
3. Enable the port that the telephone is connected to using the heading Port/DN status.

Replacing a telephone

In a powered-up system, an existing Norstar telephone can be replaced by a new Norstar telephone. If you use a Norstar telephone that has already been used on the system, it may have to be reprogrammed.

Replacing Norstar telephones of the same type

If an existing Norstar telephone is unplugged, and a new Norstar telephone of the same type is then plugged into the same jack (for example, replacing an M7208 telephone with another M7208 telephone), the new telephone acquires the programming and the internal number of the old telephone. This is normally done to replace a defective telephone.

Replacing Norstar telephones of different types

If an existing Norstar telephone is unplugged, and a new Norstar telephone of a different type is plugged into the same jack (for example, replacing an M7208 telephone with an M7310 telephone), the new telephone keeps the old internal number. The new telephone receives default programming for a telephone of its type. (Refer to Applying button cap labels in the Programming chapter).

If the telephone being replaced has more lines than the new telephone, automatic outgoing line selection may not work with the Handsfree/Mute feature. A line must be selected manually.

Status of a telephone that was replaced

The old Norstar telephone that was unplugged and replaced by a new Norstar telephone loses its programming and internal number. The old telephone's internal number has been given to the new telephone and the programming has either been removed or given to the new telephone when it was plugged into the old jack. The replaced telephone (if still functional) is now treated by the system as a telephone not previously in service.

Emergency telephone dead

1. Verify that the power indicator on the ICS is not lit.
2. Verify that there is no dial tone at the emergency telephone.
3. Check that the external line and emergency telephone connections have been made correctly.
4. Ensure that the emergency telephone is not faulty by connecting it directly to the external line 002 and listening for dial tone.
5. Verify that the ICS has a Loop Start Trunk Cartridge installed.
6. Verify that there is dial tone on line 002 of the ICS.
7. Replace the ICS.

Problems with lines

The troubleshooting problems listed here focus on trouble with making calls or using lines.

Calls cannot be made (but can be received)

1. Press * 0 .

2. Press a line button.

3. If an incorrect line number or name appears (or if neither appears) on the Norstar telephone display, check the programming settings.

OR

If the correct line number or name appears on the Norstar telephone display, make sure the external lines are properly cross-connected.

4. Check the restrictions that are applied to the set and to the lines at the set.
5. Check that the dialing mode is consistent with that used by the central office (CO).
6. Run a Maintenance session and verify that the module in which the Trunk Cartridge is installed in is not disabled or unequipped using the heading Module status.
7. Run a Maintenance session and disable the appropriate ports using the heading Port/DN status. For charts showing external line port number defaults, refer to Installing the hardware.
8. Enable the appropriate ports using the heading Port/DN status.
9. To check the line, contact the telephone company.

Dial tone absent on external lines

1. Use Button Inquiry (* 0) to display the number of the external line you are testing.
2. Check for dial tone using a test telephone at the connections for the external line on the distribution block.
3. Make sure that a Trunk Cartridge for the line is properly installed in the ICS.
4. Refer to the section on Trunk Cartridge trouble in this chapter.

5. Run a Maintenance session to ensure that the line is not disabled. (See Port/DN Status in the Maintenance chapter.)

Hung lines at a telephone

Line indicators that have been solid for a long time are the only visible indication that lines are hung.

Possible problem

A line that has been redirected using Line Redirection may, under some circumstances, remain busy after a call is over. If this happens, the outgoing line for the redirection also remains busy. You can clear this kind of hung line only at the telephone that was used to redirect the line.

Solution

1. Enter the Button Inquiry feature code (*) at the telephone that was used to redirect the line.
2. Press the button of the redirected line.
3. Press SHOW or .
4. Press DROP or .

Both the redirected line and the outgoing line for the redirection should now be cleared.

Possible problem

The supervision or Discon timer programming for the line does not match the settings for the line at the central office.

Solution

1. Verify that your programming for the line matches the central office settings.

Possible problem

Lines are still hung after all the above solutions have been investigated or tried out.

Solution

For lines that are hung for any other reason, you will have to run a Maintenance session.

1. Run a Maintenance session and go to the heading Module status.
2. Disable and enable the affected Trunk Cartridge.

Follow the procedures in the Troubleshooting overview and the Installation check sections before proceeding.

Auto-answer line rings at a Norstar telephone**Possible problem**

You configured a loop start trunk as auto-answer but the installed hardware does not support disconnect supervision. (In this case, the symptom would be accompanied by the Alarm 62 code symptom.)

Solution

1. Reconfigure the trunk as manual answer.

OR

Replace the Trunk Cartridge with one that provides disconnect supervision.

Possible problem

The line is configured as auto-answer and unsupervised.

Solution

1. Reconfigure the line as manual answer.

OR

Reconfigure the line as supervised.

Possible problem

The line is not equipped for disconnect supervision at the central office.

Solution

1. Reconfigure the trunk as manual answer.

Possible problem

The Discon timer setting for the Trunk Cartridge in Trunk/Line data does not match the setting for the line at the central office.

Solution

1. Reconfigure the Discon timer to match the setting at the central office.

Selected line reads "Not in service" or "Not available"

Possible problem

The line has been disabled for maintenance purposes.

Solution

1. Enable the line.

OR

If the line will be out of service for some time, configure another line to replace it on the telephone.

Selected line pool shows "No free lines"

Possible problem

If this happens often, there are not enough lines in the line pool to serve the number of line pool users.

Solution

1. Enter programming and move less-used loop start trunks from other line pools into the deficient line pool.

Problems with the I-ATA

The problems listed here focus on trouble with the I-ATA and the analog device connected to it.

Calls do not ring (and caller does not receive busy tone)

1. Verify that the ringer of the attached analog device is turned on.
2. Check the ringer volume.
3. Verify that calls can be answered even when the device does not ring.
4. Replace the analog device with a single-line analog telephone and check for ringing.
5. Check for ringing at the wiring connection block using a single-line analog telephone.
6. Check wiring from the connection block to the attached analog device.
7. Check the requirements of the analog device to see if it is compatible with the I-ATA specifications (see specifications on page 229).

I-ATA is always busy

1. Remove the attached analog device from the I-ATA line and make a call to the I-ATA from a Norstar telephone. If the line is not busy, the analog device may be faulty. If the line is busy, check the wiring.
2. Ensure that the analog device is not faulty by connecting it directly to an external line and verifying that it functions correctly.
3. Check the internal wiring at the modular jack and the distribution cross-connect. The I-ATA port should have about 31 Vdc across the Tip and Ring when the telephone is disconnected.
4. Check the requirements of the analog device to see if it is compatible with the I-ATA specifications (see specifications on page 229).

5. Run a maintenance session to ensure the I-ATA is not disabled.
(See Port/DN status in the Maintenance chapter.)

Calls cannot be answered (or dial tone is not present when making calls)

1. Check that the I-ATA connections have been made correctly.
2. Replace the analog device with a single-line analog telephone and check for dial tone.
3. Ensure that the analog device is not faulty by connecting it directly to an external line and checking for dial tone.
4. Check that the I-ATA is not busy by making a call to it from a Norstar telephone. If it is busy, remove the analog device and check for busy.
5. Check the internal wiring at the modular jack and the distribution cross-connect. The I-ATA port should have about 31 Vdc across the Tip and Ring when the telephone is disconnected. The voltage should drop when the analog telephone is connected and a call is attempted.
6. Check the requirements of the analog device to see if it is compatible with the I-ATA specifications (see specifications on page 229).

Calls cannot be made (but dial tone is present)

1. Ensure that the analog device is not faulty by connecting it directly to an external line and making a call.
2. Ensure the dialed number is not restricted by call restrictions.
3. Check if the ICS is detecting dialing by listening to the dial tone. Dial the first digit of an internal telephone DN and check that dial tone is removed. If you still hear dial tone, the ICS is not detecting the dialed digit.
4. Determine if the problem is associated with the wiring by connecting the analog device directly at the modular jack or the distribution cross-connect by the ICS. If calls can be made with this connection, the problem may be with the internal wiring.

5. Check the internal wiring at the modular jack and the distribution cross-connect. The I-ATA port should have about 31 Vdc across the Tip and Ring when the telephone is disconnected. The voltage should drop when the analog telephone is connected and a call is attempted.
6. Check the requirements of the analog device to see if it is compatible with the I-ATA specifications (see specifications on page 229).

Problems with optional equipment

Auxiliary ringer

1. If the auxiliary ringer is used for Schedules (Night, Evening, or Lunch schedule), ensure that Schedules is activated from the control telephone.
2. Check the wiring between the auxiliary ringer generator and the ringing device. Refer to the auxiliary ringer wiring chart.
3. Check the wiring between the auxiliary ringer generator and the distribution block.

Auxiliary ringer wiring

Feature	Pin
Auxiliary ring (Make)	50 (Violet-Slate)
Auxiliary ring (Common)	25 (Slate-Violet)

4. Ensure that the auxiliary ringer contacts are operating properly by checking with an ohmmeter across the auxiliary ringer pin contacts. Refer to the auxiliary ringer wiring chart.
5. Check that the auxiliary ringer pin contacts are programmed to operate in conjunction with any or all of the features in the auxiliary ringer programming chart.

Auxiliary ringer programming

Feature	Programmed in	
Auxiliary ringer: Lines	Lines	Trunk/Line data
Auxiliary ringer: Sets	Terminals&Sets	Capabilities
Service Modes	Services	Ringing service

The maximum current carrying capability of the Norstar auxiliary relay contacts is 50 mA dc. They are designed to operate with the auxiliary ringer generator, or equivalent.

External paging

1. Use the Button Inquiry feature (*) to verify the feature of a programmable memory button.
2. Check the wiring between the 50-pin connector and the paging amplifier or between the connections shown in the external paging wiring chart.

External paging wiring

Feature	Pin
Page out (Tip)	50 (Violet-Slate)
Page out (Ring)	25 (Slate-Violet)
Page (Make)	49 (Violet-Brown)
Page (Common)	24 (Brown-Violet)

3. Test external paging to ensure that it is working. The nominal output signal from the Norstar ICS is 100 mV rms across 600 Ω .

Music on Hold/Background Music trouble

Although Music on Hold and Background Music are separate features, they share the same wiring and customer-supplied music source.

1. Ensure that the proper feature access code () is turned on. Adjust the volume using the volume control bar.
2. Use the Button Inquiry feature (*) to verify the feature on a programmable memory button.
3. If there is trouble with Music on Hold, check the music settings in programming.

Music programming

Feature	Programmed in	
Backgrnd music: Y	System prgming	Featr settings
On hold: Music	System prgming	Featr settings

4. Check the wiring between the music source and the 50-pin connector. See the wiring charts in the Installation section.
5. Ensure that the music source is turned on, is operational, and the volume control is set properly.

6. Any music source with a low-output impedance (for example, less than 3,300 ohms) can be connected. The output level must be less than one volt.

Problems with Trunk Cartridges

Check first for user configuration problems, then wiring and programming errors before replacing Norstar equipment.

Trunk Cartridge trouble

1. Check that the cartridge is properly inserted in the ICS.
2. Run a Maintenance session to ensure that the cartridge is not disabled.

If the problem persists:

1. If AC power is present and the LED indicator on the ICS is off, see the section on ICS down on page 186.

Refer to the Installation chapter for information on replacing components.

ICS down

1. If AC power is present and the indicator light on the ICS is off, replace the fuse in the ICS (see illustration on next page).
2. Disconnect all central office and station lines from the ICS. Power down the ICS by unplugging it.



Your Norstar system requires connection to a grounded outlet.

To prevent possible injury from voltage on the telephone network, disconnect all central office and station lines before removing plug from the electrical outlet.

3. After powering down the ICS, use fingernails or screwdrivers to pinch the tabs on the fuse drawer and remove it from the ICS. The cables can easily and safely be pushed aside to reach the fuse drawer.
4. Remove the fuse from the left-hand compartment (not the one labeled "spare fuse") and discard.
5. Insert the new fuse into the left-hand compartment.
6. A spare fuse is located in the right-hand compartment (labeled "spare fuse") of the fuse drawer.
7. If there is no spare fuse, you will have to obtain a replacement.

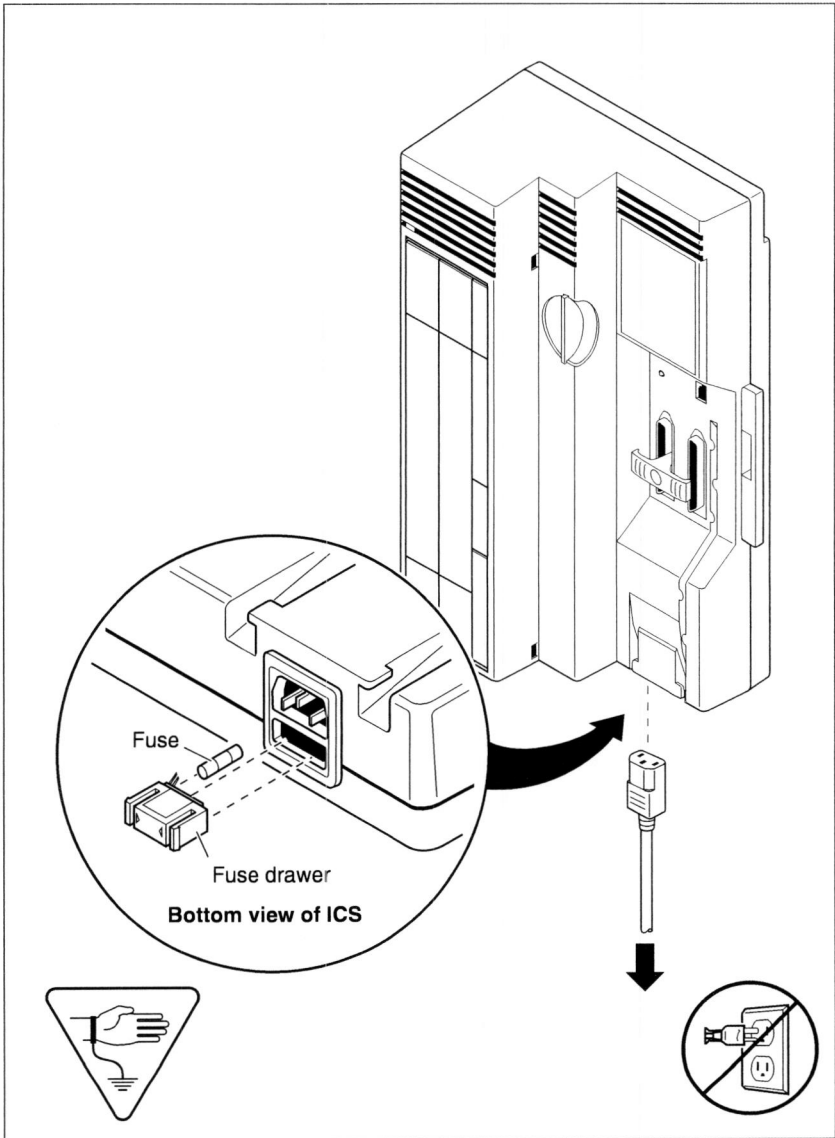


Replace with the same type of fuse.

For continued protection against risk of fire, replace only with the same type and rating of fuse (250 V, 3.15 A).

8. Replace the fuse drawer in the ICS and restore power to the system.

9. Connect the central office and station line connectors.



Problems for network or remote users

Remote feature code gets no response

Possible problem

A Norstar user has called into another Norstar system and is trying to activate a remote feature but gets no response after dialing the feature code.

Solution

1. If a COS password is needed for remote access, make sure the user has entered the appropriate password.
2. Make sure that the remote caller is dialing the feature code correctly. Use the asterisk (*) character, followed by the feature code, to activate a remote feature.
Do not use for accessing features on a remote Norstar system.
3. Ensure that the remote user is dialing tones, not pulses once the call is answered.
4. Make sure an appropriate remote package is in use for the incoming line.
5. Check the restrictions for the remote package used with the incoming line.

Dialed DISA number gets ringback instead of stuttered dial tone

Possible problem

The remote caller has dialed a DISA number, but has instead been routed to the prime telephone for the auto-answer trunk.

Solution

1. Check that you have defined the correct DISA DN for your system.
2. Make sure that the published telephone numbers for your network are correct.

DISA user gets overflow tone when entering COS password

Possible problem

The remote caller may have entered an invalid password.

Solution

Check the Administration programming under COS passwords and verify that the caller has a valid password.

Possible problem

The remote caller may have entered an asterisk (*) as one of the 6 digits.

Solution

Instruct remote callers to enter their COS password correctly: enter 6 digits.

Possible problem

The remote caller may have entered a number sign (#) as one of the 6 digits.

Solution

Instruct remote callers to enter their COS password correctly: enter 6 digits. The number sign (#) may be entered after the 6th digit, but is not required.

Possible problem

The remote caller may have waited more than 15 seconds between entering digits.

Solution

Instruct remote callers to enter their COS password correctly: enter 6 digits, and do not pause too long between digits.

Possible problem

The caller may be dialing from a rotary-dial telephone or from a push-button telephone that uses pulse signaling.

Solution

Inform remote callers that they must dial from a push-button telephone that uses DTMF, also known as touch-tone signaling.

Dialed feature code gets overflow tone

Possible problem

The remote caller does not have access to that feature.

Solution

1. If the call came in on a trunk with DISA, check the Class of Service that is associated with the remote caller's COS password. If it is too restrictive, modify the remote package assigned to the COS password, or assign another COS password that is more suitable.
2. If the call came in on a trunk without DISA, check the remote package that you assigned to the incoming trunk. Make sure that it gives the appropriate access to the remote caller.

Possible problem

The feature code is not valid.

Solution

1. Make sure that remote callers have a correct listing of the features that are programmed for remote access.
2. Ensure that remote callers are dialing the feature code correctly. Press ☐ followed by the feature code to activate a remote feature.

Possible problem

The caller may be dialing on a rotary-dial telephone or on a push-button telephone that uses pulse signaling.

Solution

Inform remote callers that they must dial from a push-button telephone that uses DTMF, also known as touch-tone signaling.

Dialed feature code gets busy tone

Possible problem

A resource that the remote feature uses may currently be in use. For example, a remote caller trying to use the paging feature would get a busy tone if the auxiliary speaker were being used at the time.

Solution

If repeated attempts to use the remote feature produce a busy tone, there may be a malfunction in a resource that the feature uses. Check that the remote feature hardware is functioning normally.

Line pool access code gets overflow tone

Possible problem

If the published line pool access code is valid, the remote caller does not have access to that line pool.

Solution

If the incoming trunk answers with DISA, give the remote caller a COS password that permits access to that line pool.

OR

Change the remote package for the incoming trunk so that it permits access to that line pool.

OR

Give the remote caller a line pool access code that is permitted within the Class of Service on the incoming trunk.

Possible problem

The published line pool access code is invalid and there is no prime telephone for the auto-answer trunk.

Solution

1. Make sure that the published line pool access codes are correct.
2. Check that the line pool access codes have been entered correctly under Access codes in System prgrmg.

Possible problem

The caller may be dialing from the network on a rotary-dial telephone or on a push-button telephone that uses pulse signaling.

Solution

Inform remote callers that they must dial from a push-button telephone that uses DTMF, also known as touch-tone signaling.

Line pool access code gets ringback

Possible problem

The published line pool access code is invalid, and the system has routed the call to the prime telephone for the incoming trunk.

Solution

1. Make sure that the published line pool access codes are correct.
2. Check that the line pool codes have been entered correctly under Access codes in System prgmrng.

Line pool access code gets busy tone

Possible problem

There are not enough lines in the line pool to serve the number of users.

Solution

If the line pool contains loop start trunks, enter Terminals&Sets and move less-used loop start trunks from other line pools into the deficient line pool.

Dialed number gets no response

Possible problem

The remote caller, after accessing a line in a line pool, may have started dialing before the far end was ready to receive digits.

Solution

Instruct remote callers to wait until they hear feedback before entering any digits.

Possible problem

There may be a malfunction in the line that the remote caller accessed.

Solution

If the problem is persistent, check that all lines in the affected line pool are functioning normally.

Possible problem

There may be a malfunction in the system that the caller is trying to reach.

Solution

Inform the operators of the system at the far end that the dialed number is not getting through.

Maintenance

Maintenance overview

A Norstar Maintenance session helps you diagnose problems that may occasionally arise within the Norstar system.

The Maintenance section of programming has seven headings.

System version	displays the version number of the system processor.
Port/DN status	allows you to check and change the status of ports in your system.
Module status	allows you to check and change the status of modules in your system.
Sys test log	displays a list of test results, event messages, and alarm codes.
Sys admin log	displays a list of system initializations, configuration sessions, invalid password attempts and password changes.
Loopback tests	allows you to run a single test, the bit error rate test (BERT) on the voice and data paths between the ICS and telephones.
Remote monitr	allows a technical specialist from a remote location to monitor the Norstar system. It is not part of regular installation or maintenance of the Compact ICS.

You can run a Maintenance session from any working Norstar M7310 or M7324 telephone. Only one person at a time can access a Maintenance session. Photocopy the Maintenance records found at the end of this chapter, and keep a pencil handy to record important information.

Beginning a Maintenance session

1. Release all calls on your telephone.
2. Press * * C O N F I G which is the same as * * 2 6 6 3 4 4 . The display reads **Password:**.
3. Enter the Installer password. The display reads **Terminals&Sets**. Three triangular indicators ► appear on the vertical display between the rows of buttons.
4. Place the programming overlay over the buttons pointed to by the indicators ►.
5. Press until the display reads **Maintenance**.

System version

System version allows you to note the version number of the system processor (SP) software, which resides in the Feature Cartridge.

The SP version number can be used to determine whether you have the latest software release, and to trace a software fault if one occurs. For instance:

- SP version number can indicate a Feature Cartridge incompatibility with your system.
- SP and telephone version numbers can indicate a telephone version incompatibility.
- SP and functional terminal version numbers can indicate a functional terminal incompatibility.

Checking the version of the system

To check the version number, start with the display reading **Maintenance**:

1. Press . The display reads **System version**.
2. Press . The display shows the version number of the SP.
3. Write the SP version number on the appropriate Maintenance record.

Port/DN status

Port/DN status allows you to:

- identify any device or line connected to the system
- check the version number of a device (an analog terminal adapter, for example) for compatibility with the system
- check the state of a device or line (for example, idle or busy)
- disable or enable a device
- determine which port number corresponds to each DN
- determine the port number of a malfunctioning device
- determine if a malfunctioning device is incompatible with the Norstar system
- disable a device before replacing it



Tip - *You cannot disable the Norstar telephone from which you are accessing the Maintenance session. If you try to do this, a message appears on the display and you hear an error tone. If you want to disable that particular telephone, conduct the Maintenance session from another Norstar telephone.*



Pick a suitable time to disable devices

Do not disable devices when many people are using the Norstar system. Wait until after regular office hours.

Do **not** enable or disable ports during the first two minutes after Startup programming.

If you do so, incorrect ports may be enabled or disabled. To recover from this, disable then enable the affected modules using Module status.

Port/DN status allows you to check lines and devices on the system. Although the following procedures describe how to check devices, you can use the same procedures to check lines.

Lines can only be disabled in Module status.

Identifying a device connected to the system

Start with the display reading **System version**:

1. Press . The display reads **Port/DN status**.
2. Press . The display reads **Show Port:**.
3. Enter the port number of the device, or press DN, then enter the directory number of the device. The display shows port information, as illustrated in the sample displays. This identifies the DN (internal number) associated with the B1 channel.
4. Press DEVICE to see device information, as illustrated in the sample displays. If the device has version information, you will be able to see the information by pressing .
5. If there is more than one device attached to a port (for example, a Norstar telephone and a central answering position (CAP) module or a Busy Lamp Field), press  while the information is on the display to show the device and press  to see the add-on devices.
6. Press >B2 to display the device connected to the B2 channel.
7. Press  until the display reads **Port/DN status**.

Displays

Sample device identification display

P104:24
DEVICE >B2 STATE

This sample display indicates that port 104 is associated with the DN 24. Press DEVICE to see the device attached to the port.

P104:7324
VERSN

This sample display indicates that a7324 telephone is attached to port 104.

The following table lists some of the device types that may appear on the Norstar device identification display.

Explanation of device type

Display	Explanation
7100	M7100 telephone
7208	M7208 telephone
7310	M7310 telephone
7324	M7324 telephone
1: MODULE1	First CAP module attached to an M7324 telephone
2: MODULE2	Second CAP module attached to an M7324 telephone
IATA	Internal analog terminal adapter
IRAD	Internal remote access device
BLF	Busy Lamp Field

Checking the version number of the device

From the Norstar device identification display:

1. Press VERSN (if it is available) when the device information for a port is displayed. The display shows the version number of the device.
2. Write this number on the appropriate Maintenance record.
3. Press OK to return to the Norstar device identification display from the display showing the version number.

Checking the state of the device

From the Norstar DN identification display:

1. Press STATE. The display shows one of the states listed in the table on the following page.
If you want, you can disable or enable the device (see the procedures in this chapter).
2. Press OK to return to the device identification display.

How the device state is shown on the display

Display	State of device
Busy DISABLE OK	The device is in use.
Disabling... OK	The device is being disabled.
Enabling... OK	The device is being enabled.
Idle DISABLE OK	The device is not in use.
Unequipped DISABLE OK	There is no device connected to that port.
Disabled by user ENABLE OK	The device has been disabled by someone running a Maintenance session.
Disabled by sys. ENABLE OK	The device has been disabled by the system because it is faulty or because a test is running.
Not available DISABLE OK	There is no state available.

Disabling a device



Give notice that you are disabling equipment.

Make sure you inform people that you are going to disable their devices because all calls on the affected line or set will be dropped.

To disable immediately when the display indicates the device is busy:

1. Press **DISABLE**. The display reads **Disable at once?**.
2. Press **YES**. The system prompts the device user and disables the device in one minute (or immediately, if the device is idle).

Displays

The following table show examples of the sequence of messages that might appear on a telephone when you disable a device.

Examples of display messages

Please hang up Maintenance test	Occurs on a busy telephone before disabling
48 seconds until disconnect	
Please hang up	
In Maintenance	Occurs after disabling

Enabling the device

When the display shows you that the device is disabled:

1. Press **ENABLE**. The display briefly shows **Enabling...**. The device is immediately enabled and the display reads **Idle**.



Tip - The display may briefly show *Enabling...*, then either *Disabled by sys.* or *Disabled by user.* In this case, the system is waiting to enable the module. This may occur after someone has run a Maintenance session and used Module status. You cannot enable the device until its module has been enabled.

Individual lines cannot be disabled in Port/DN status. To disable a Trunk Cartridge, see Module status.

Returning to the beginning

From the display showing the state of the device:

1. Press OK.
2. Press  until the display reads Port/DN status.

Module status

Module status allows you to:

- check the number of Trunk Cartridges in the ICS
- disable or enable a ICS cartridge
- clear a hung line by disabling and enabling the affected Trunk Cartridge

Looking at the module inventory

Start with the display showing Port/DN status:

1. Press . The display reads **Module status**.
2. Press . The display reads **Show module#:**.
3. Enter the module number. Modules 1 and 2 are located inside the ICS.

If you choose module 1, the display shows how many telephones are connected to the ICS. If you choose module 2, the display shows the number of Trunk Cartridges connected to the ICS.



Tip - Norstar devices may occupy both the B1 and B2 channels. This may increase the number of devices indicated on the module inventory display.

Checking the number of Trunk Cartridges attached to a module

Start from the module inventory display, which shows the number of Trunk Cartridges connected to the module you chose (for example, KSU: 2 cards).

1. Press CARD. If there is a Trunk Cartridge in a slot, the display shows that four lines are connected (for example, Card 1: 4 lines).
2. Press  or  to check for a Trunk Cartridge in the other slot.
3. Press MODULE to return to the module inventory display.

Checking the state of a module

Start from the module inventory display, which shows the number of Trunk Cartridges connected to the module you chose (for example, KSU: 2 cards).

1. Press STATE. The state of the module is shown on the display. Some examples of this display are shown on the following page.
2. Press OK to return to the module inventory display.

How the module or cartridge state is shown on the display

Example	State of module or cartridge
3 sets busy DISABLE OK	There are three devices in use that are connected to the module or cartridge.
2 ports busy DISABLE OK	There are two ports in use that are connected to the module or cartridge.
4 lines busy DISABLE OK	There are four lines in use that are connected to the module or cartridge.
Disabling... OK	The module or cartridge is being disabled.
Enabling... OK	The module or cartridge is being enabled.
Unequipped DISABLE OK	There is no cartridge connected to that port.
Disabled by user ENABLE OK	The module or cartridge has been disabled from a Maintenance session.
Disabled by sys. ENABLE OK	The module or cartridge has been disabled by the system because it is faulty or because there is a test running.
Updating state...	The system is verifying the state of the module or cartridge.

Checking the state of a cartridge

Start from the display that shows the number of lines connected to the Trunk Cartridge you chose (for example, Card 1: 4 lines).

1. Press STATE. The display shows the state of the cartridge. Some examples of this display are shown on the previous page.
2. Press  or  to check the other Trunk Cartridges.

3. If required, you can disable or enable the cartridge. (See the procedures in the following two sections.)
4. Press OK to return to the display showing how many lines are connected to the Trunk Cartridge.

Disabling a module or its cartridges



Use Page feature prior to disabling.

Use the Page feature to inform people that you are about to disable a module. Mention that they may experience delays in the performance of their devices.

From the display showing the state of the module or cartridge:

1. Press DISABLE. The display reads `Disable at once?`.
2. Press YES. The system disables the module or cartridge in one minute (or immediately, if the status is idle).

Enabling a module or its cartridges

From the display showing the state of the module or cartridge:

1. Press ENABLE. The display briefly shows `Enabling...`. The module or cartridge is immediately enabled. The display then shows the state of the module or cartridge.

Returning to the beginning

From any display showing the state of the module or cartridge:

1. Press OK.
2. Press  until the display reads `Module status`.

System test log

The System test log shows you a list of diagnostic test results, audits, event messages, and alarm codes. By using this feature you can:

- check the items in the log
- check the current alarm (if there is one)
- check when each item in the log occurred
- check the number of consecutive occurrences of an event or an alarm
- erase the log

The System test log holds a maximum of 20 items. You should check and record these items at regular intervals. Erase the log after dealing with all the items.

Checking the items in the log

Start with the display reading *Module status*:

1. Press . The display shows *Sys test log*.
2. Press . The display reads *Items in log:*. (If there is no log entry, the display shows *Items in log:0* and returns to *Sys test log*.)
3. Press  or . The display shows a log item.
4. Write down the item on the System test log record on page 225.
5. If the log item is an event message or an alarm code, refer to the Event messages section or the Alarm codes section in this chapter.
6. Repeat steps 3, 4, and 5 until you have recorded all the items.

Checking the current alarm

If you want to check the highest severity alarm quickly before viewing all the log items, start with the display reading **Items in log:**.

1. Press ALARM. The display shows an alarm code.
If there is no current alarm, ALARM does not appear on the display.
2. Press OK to return to the display **Items in log:**.

All alarms are recorded as items in the System test log.

Checking when each item in the log occurred

Start with any display showing a log item:

1. Press TIME. The display briefly shows the date and time.
2. Write the date and time on the System test log record.

Checking the number of consecutive repetitions of an event or alarm

If REPEAT appears under a display showing a log item:

1. Press REPEAT. The display shows the number of consecutive times the event or alarm occurred.

Erasing the log

Start with the display reading **Items in log:**.

1. Press ERASE. The display reads **Erase log?**.
2. Press YES.
If no new items have been added since the list was entered, the log is erased and the display reads **Log erased**.
OR
If new items have been added since the list was entered, the display briefly reads **Cancel-new items** and returns to the display **Items in log:**.
3. Press  to return to **Sys test log**.

System administration log

The System administration log keeps a record of administrative events such as system initialization, configuration sessions in which a change was made, invalid password attempts, and password changes. By using this feature you can:

- check the items in the log
- erase the log
- check when each item in the log occurred

The System administration log holds a maximum of ten items. Erase the log after dealing with all the items.

Checking the items in the log

Start with the display reading `Sys test log`.

1. Press . The display reads `Sys admin log`.
2. Press . The display reads `Items in log:`. (If there is no log entry, the display reads `Items in log:0`.)
3. Press  or . The display shows a log item.
4. Write down the item on the System administration log record on page 226.
5. Repeat steps 3 and 4 until you have recorded all the items.

Checking the current alarm

Start with the display reading `Items in log:`.

1. Press ALARM. The display shows an alarm code.
If there is no current alarm, ALARM does not appear on the display.
2. Press OK to return to the display showing `Items in log:`.

Checking when each item in the log occurred

Start with any display showing a log item:

1. Press TIME. The display briefly shows the date and time.
2. Write the date and time on the System administration log record.

Erasing the log

Start with the display reading **Items in log:**.

1. Press ERASE. The display reads **Erase log?**.
2. Press YES. If no new items have been added since the list was entered, the display reads **Log erased**.

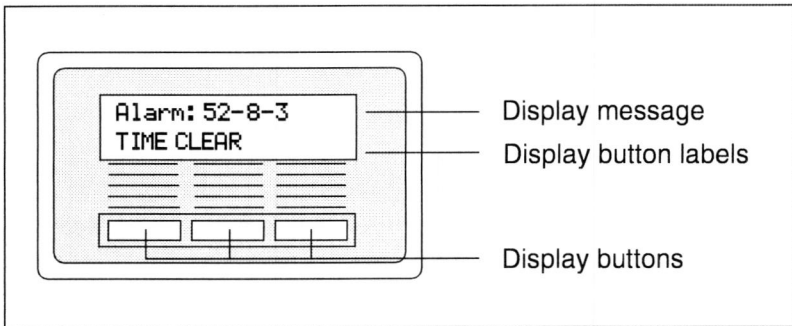
OR

If new items have been added since the list was entered, the display briefly reads **Cancld-new items** and returns to the display **Items in log:**.

3. Press  to return to **Sys admin log**.

Alarm codes

The Norstar ICS generates alarm codes after system disconnections or after certain anomalies in system operation. All alarm codes appear at the Alarm telephone and in the System test log of a Maintenance session. For a complete description of alarm and event codes, you may order an *Alarm and Event Code Manual* from your service provider. The following figure shows an alarm code appearing on a Norstar Alarm telephone display.



Tip - The Alarm telephone is assigned in Featr settings of System programming.

Alarms have a higher severity than events. Attend to alarm codes before event messages.

If you see an alarm code

1. Write the alarm code in the System test log record on page 225.
2. Determine the cause of the alarm from the following table.
3. Follow Alarm troubleshooting procedures in this chapter.
4. Press TIME to see when the alarm occurred.
5. Press CLEAR to clear the alarm.

An alarm code may not be displayed until two minutes after it has been triggered. If the ICS is without power when the alarm is triggered, the alarm code is not displayed until two minutes after the power is restored to the ICS.

For a complete list of Norstar alarms, consult the *Norstar Alarm & Event Code Manual*.

Displays

Example display	Meaning	Possible causes
Alarm: 10	All ICS devices disconnected.	The last device on Norstar bus 1 (port numbers 101-124) has been removed. A 25-pair cable was disconnected from the ICS. There is an internal ICS fault.
Alarm: 52-X-Y	A Trunk Cartridge has been disconnected.	The Trunk Cartridge is not properly installed.
Alarm: 61-X-Y	Incompatible Trunk Cartridge	Trunk Cartridge Y on port X cannot operate with the Trunk type assigned to it in configuration.
Alarm: 62-X-Y	Unsupported auto-answer setting (Loop Start TCs)	Trunk Cartridge X on port Y does not support the auto-answer setting.
Alarm: 63-Z	No available DTMF receivers	DTMF receivers are busy, not working properly, or have not been installed.

"X" = DS-30 port number (1-8)

"Y" = Trunk Cartridge number (numbered from left to right)

"Z" = Trunk port number

Alarm troubleshooting

Refer to the previous table before following these procedures.

Alarm: 10

1. Check to see if there is a device connected to the ICS (that has a port number beginning with the number "1").
2. If there are no devices connected to the ICS, connect one and then press CLEAR.
3. If there are any devices connected to the ICS, check all the wiring associated with the devices.
4. Refer to the section in the Troubleshooting chapter entitled ICS down.

Alarm: 52-X-Y

1. Check all connections to the Trunk Cartridge.
2. Check that the proper Trunk Cartridge is inserted in the appropriate slot of the ICS
3. Remove and re-install the Trunk Cartridge.
4. If the alarm persists, replace the Trunk Cartridge with another Trunk Cartridge of the same type.

Alarm: 61-X-Y

1. Check that the proper Trunk Cartridges are inserted in the proper slots of the ICS.
2. Enter programming and look under the Trunk/Line data heading. Check that the Trunk Cartridge type is correctly configured. Check that the Trunk mode and Answer mode settings do not conflict for every line connected to Trunk Cartridge Y. If Trunk mode is set to unsupervised, Answer mode must be set to Manual.

OR

Install a Trunk Cartridge in slot Y that matches the type of trunk you have configured.

Alarm: 62-X-Y

1. Check that the proper Trunk Cartridges are inserted in the proper slots of the ICS.

2. Enter programming and look under the Trunk/Line data heading. Check that the Trunk Cartridge type is correctly configured. Check that the Trunk mode and Answer mode settings do not conflict for every line connected to Trunk Cartridge Y. If Trunk mode is set to unsupervised, Answer mode must be set to Manual.

Alarm: 63-Z

1. Enter programming and look under Lines in the Trunk/Line data heading. Check that the Answer mode is correct for all the loop start lines.

Event messages

Event messages appear as items in the System administration log or the System test log of the Maintenance session. Most of these event messages can only be caused by an unusual combination of events, and should rarely occur.

Each event is assigned a severity number. An "S" preceding this number, "S4" for example, may appear in the event message. "S9" is the most severe. If the Log is full, new event messages with a higher severity number replace existing event messages of a lower severity. For this reason, you should check event messages at regular intervals. You can then deal with all messages before they are replaced.

For a complete list of Norstar events, consult the *Norstar Alarm & Event Code Manual*.

Dealing with event messages

For every event message that you see:

1. Record the event on the appropriate Maintenance record.
2. Consult the next section entitled Significant event messages.
3. To see if the event caused the Norstar system to automatically restart, consult the subsequent section entitled Complete list of event numbers.

Significant event messages

The table on the next page lists event messages that are relevant to Maintenance activities. The time that the message is recorded is also provided.

Displays

In some cases, additional zeros will appear in event codes. These zeros are part of the formatting and do not change the meaning of the code.

Event message		The event message is recorded when...
EVT196	S4	there was a software error on the built-in modem
EVT197	S4	system operation is slow or there was a software error with the auto-attendant feature
EVT210-YYYZ	S4	Loopback test YYY on Trunk Cartridge Z has been started
EVT211-YYYZ	S4	Loopback test YYY on Trunk Cartridge Z has been stopped
EVT220-3546	S4	the System administration log has been cleared by the DN (3546 in this case)
EVT221-3546	S4	the System test log has been cleared by the DN (3546 in this case)
EVT222-3546	S5	the DN (3546 in this case) enters the debugging facility that is password protected
EVT255	S9	administered mode is not supported by the cartridge plugged into the slot
EVT268-07	S8	Restriction filter 07 has lost data due to a fault in the system memory
EVT269-3546	S8	the Line/set restriction for the DN (3546 in this case) has lost data due to a fault in the system memory
EVT299	S1	the system powers up after a power failure
EVT362	S4	a continuous bit error rate test (BERT) has been started, or a BERT has been started from a remote location
EVT363	S4	a continuous bit error rate test (BERT) has ended, or a BERT has been ended from a remote location

Event message		The event message is recorded when...
EUT400	S9	Startup programming is performed using Feature * * S T A R T U P
EUT407	S2	there are no more codes for Speed Dial numbers
EUT408	S2	there is no more memory for Speed Dial codes
EUT416-3546	S3	an invalid password has been entered by the DN (3546 in this case)
EUT418	S7	a DN change is successful
EUT419	S2	the time setting has been changed
EUT421	S8	a DN change failed
EUT422-3546	S6	a length change by the DN (3546 in this case) has been requested
EUT423-3546	S6	an individual DN change has been requested by the DN (3546 in this case)
EUT448	S8	the system has started to copy data to a range of telephones
EUT449	S4	the system has completed copying data to a range of telephones
EUT451	S5	a remote user made three unsuccessful attempts to enter the installer password to access the Remote monitoring feature
EUT452-3546	S4	a programming password has been changed by the DN (3546 in this case)
EUT453-3546	S4	a programming session has been initiated by a DN (3546 in this case)
EUT454-3546	S5	an invalid password has been entered by the DN (3546 in this case) while attempting to start a programming session
EUT822	S8	Alarm code 63 is sent because there are no DTMF receivers for an incoming call

Displays

You should rarely see any event messages that are not described in the section entitled Significant event messages. If you do see one of these event messages, the Norstar system has followed its normal recovery from an unusual combination of system events. Although the problem is not a serious one, repeated occurrences of the event number should be reported as soon as possible.

As a result of some events, the Norstar system automatically restarts itself. The table on the next two pages lists all the event numbers and tells you which of these events are associated with Norstar system restarts.

Most of these events are recorded in the System test log. The few exceptions to this are recorded in the System administration log, as indicated.

Event Message	System Restart	Event Message	System Restart
101-106	Yes	285-298	Yes
107	No	299	No
108-112	Yes	362-363	No
113	No	400 (Admin log)	Yes
114-116	Yes	401-411	No
117	No	412-423 (Admin log)	No
118-120	Yes	424-425	No
121-123	No	426-430	Yes
124-125	Yes	431	No
126-129	No	432	Yes
130	Yes	433	No
131-132	No	441-451	No
133-134	Yes	600-602	Yes
135-136	No	603-613	No
137	Yes	614	Yes
138-150	No	615-629	No
151	Yes	630	Yes
152	No	631-646	No
160-164	No	800-802	No
170-173	No	803	Yes
196-211	No	804-807	No
220 (Admin log)	No	808	Yes
221-222	No	809	No
223 (Admin log)	Yes	810	Yes
224	Yes	811-820	No
225-228	No	823	Yes
229 (Admin log)	Yes	824-825	No
230-235	No	883	No
245-248	No	900	No
250-256	No	940-943	No
260-271	No	950-989	No
280-283	No		

Loopback tests

Norstar allows you to run a loopback test to verify the integrity of the installation wiring. The bit error rate test (BERT) may help to detect problems caused by wiring faults such as opens, shorts, bridge taps, split twist, crosstalk, ohmic connections, and imbalance.

You can run the bit error rate test to check the quality of the path for voice or data. You can also run a test continuously until an error occurs or you stop the test, if you need more information about errors or the problem is sporadic.

The test can only be run on one telephone at a time. You cannot run a Bit Error Rate test on the telephone that you are using for the Maintenance session. Make sure there is a Norstar telephone connected for the DN you wish to test.

Loopback tests are started and stopped in Maintenance programming under the heading Loopback tests.



Tip - Do not run a BERT on the I-ATA or on any other peripheral device.

Starting a bit error rate test for voice or data

Start with the display reading `Sys admin log`.

1. Press . The display reads `Loopback tests`.
2. Press . The display shows `BERT-set tests`.
3. Press again. The display reads `Show set:`
4. Enter the DN for the telephone you wish to test. The display briefly reads `Checking state...` and then reads `Disable at once?`.
5. Press YES. The display briefly reads `Disabled by user` and then reads `Test:Voice path`.
6. Press if you want to run the test on the Data path.

7. Press START to begin the test. The display shows the test name followed by running. When the test is finished, the display shows the test name followed by PASS or FAIL.
8. Press TEST, then repeat step 7 if you wish to test the telephone again.
OR
Press DONE to return to Show set:. The telephone just tested is automatically re-enabled.

Stopping a bit error rate test for voice or data

1. Press CANCEL. The display shows Test cancelled and returns to Show set:. The telephone just tested is automatically re-enabled.

Starting and stopping a continuous bit error rate test

Start with the display reading Sys admin log.

1. Press . The display reads Loopback tests.
2. Press . The display shows BERT-set tests.
3. Press  again. The display reads Show set:
4. Enter the DN for the telephone you wish to test. The display briefly reads Checking state... and then reads Disable at once?
5. Press YES. The display briefly reads Disabled by user and then reads Test:Voice path.
6. Press  twice. The display reads Test:Continuous.
7. Press START to begin the test. The display shows the bit error rate, updating every two seconds.
8. Press STOP to end the test. The display shows the last bit error rate.
9. Press TEST, then repeat steps 7 and 8 if you wish to continue testing.
OR
Press DONE to return to Show set:. The telephone just tested is automatically re-enabled.

How the bit error rate test status is shown on the display

Display	State of device
BERT denied	You have entered the DN for the telephone you are using to run the Maintenance session, the I-RAD, or an internal or external ATA.
BERT:Out of sync TEST DONE	The data, voice, or continuous test has stopped due to being out of sync. Either the error rate is very high, or the telephone at that DN has been removed.
BERT-Set:23 STOP	A bit error rate test is already running on the telephone at DN 23.
BERT: Try later	The resource in the ICS is busy with another feature.
Connect set	There is no telephone connected for that DN.
Continuous:FAIL TEST DONE	The continuous test has stopped because the bit error rate is more than 1 in 10^3 for a 2-second interval during the test.
Data path:FAIL TEST DONE	The data path test is complete and there is more than 1 error in 10^7 transmitted bits.
Data path:PASS TEST DONE	The data path test is complete and there is no more than 1 error in 10^7 transmitted bits.
Voice path:FAIL TEST DONE	The voice path test is complete and there is more than 1 error in 10^5 transmitted bits.
Voice path:PASS TEST DONE	The voice path test is complete and there is no more than 1 error in 10^5 transmitted bits.
23:<1E-10 STOP	The bit error rate for the telephone at DN 23 is less than 1 in 10^{10} .
23:10E-05 STOP	The bit error rate for the telephone at DN 23 is 1 in 10^5 .

Maintenance records

Maintenance records are tables used to record information you have obtained while running a Maintenance session.

Before you begin, photocopy the tables in this section.

Recording information on the Maintenance records

To use the following records, do the following:

1. While running a Maintenance session, enter the information on a photocopy of the appropriate Maintenance record.
2. Return the completed records to your Norstar distributor.

Version number record

The Maintenance session tells you the software versions of the System Processor (SP), and devices connected to the Norstar system. Use the following table to record these version numbers when you run a Maintenance session. You can check the SP version number under the heading System version. Device version numbers are found under the heading Port/DN status.

Version numbers

[illegible]

System test log record

You can check under the Sys test log heading to find a list of audits, event messages, and alarm codes. Use the following table to record these log items when you run a Maintenance session.

System test log

Sys test log		
Log item	Time of log item	Number of repetitions
	:	
	:	
	:	
	:	
	:	
	:	
	:	
	:	
	:	
	:	
	:	
	:	
	:	
	:	
	:	
	:	
	:	
	:	
	:	
	:	
	:	
Time and date that log was checked	:	/ /

System administration log

Log item	Time of log item	Number of repetitions
	:	
	:	
	:	
	:	
	:	
	:	
	:	
	:	
	:	
	:	
	:	
	:	
	:	
	:	
	:	
	:	
	:	
	:	
	:	
	:	
Time and date that log was checked	:	/ /

Specifications

Norstar system

Service tone cadences

Tone	Cadence (seconds)
Busy	0.5 on / 0.5 off
Expensive route	0.3 on / 0.3 off (3 bursts)
Overflow	0.25 on / 0.25 off
Ringback	2.0 on / 4.0 off
Confirmation	1.0 on / 1.0 off (3 bursts followed by no tone)
Recall	1.0 on / 1.0 off (3 bursts followed by steady tone)
Ring splash	0.2 on (1 burst)

Power specifications

Characteristic	ICS
Voltage V AC (nominal)	110-120*
Current A rms (max)	1.9
Frequency Hz (nominal)	50-60
Crest factor	4.0
Fuse	250 V, 3.15A

*Connection to ac power rated greater than 120 V ac nominal requires an approved cord set for that voltage range.

Telephone loop specifications

Characteristic	Value
Loop resistance	64 Ω (300 m of 0.5 mm wire or 975 ft. of 24 AWG wire)
Loop length	300 m (975 ft.) without station auxiliary power supply 1200 m (3900 ft.) with station auxiliary power supply
Minimum voltage at telephone	11 V dc
Current at telephone (idle)	45 mA nominal
Current at telephone (active)	80 mA maximum

Electrical requirements

Characteristic	Spec/Value
Electrostatic discharge	
ICS and telephones	IEC 801-2 2nd Edition, level 3 maximum of 8 kV with a 300 Ω /150 pF probe
Connectors	IEC 801-2 2nd Edition, level 2
Radiated immunity	Bell Canada TAD 8465 (operation in fields of up to 5V/m over the frequency range of 100kHz to 1GHz)
Conducted immunity	Bell Canada TAD 8465 (operation with common mode injected voltage of up to 3V RMS over the frequency range of 150 kHz to 30 MHz)

Environmental requirements

Characteristic	Spec/Value
Operating temperature range	0°C to 50°C (32°F to 122°F) IEC. 68-2-1 Tests Ad and IEC. 68-2-2, Method A
Storage temperature range	-50°C to 70°C (-58°F to 158°F) IEC. 68-2-1 Test Ab and IEC. 68-2-2 Test Bd
Humidity above 34°C (93°F) at 40°C (104°F)	5% to 95% (non-condensing) <52 mbar of water vapor pressure IEC. 682-2-3 Test Ca

Internal analog terminal adapter (I-ATA)

Characteristic	Spec/Value
Battery voltage	-31 V DC $\pm 10\%$
Maximum loop length	900 m (3000 ft.)
Minimum loop current	25 mA
Current limit	39 mA
Ring voltage at T/R	50 Vrms
Maximum ringing load	2 REN
Ringing frequency	20 Hz
Ring trip time limit	150 ms

Upgrading your system



Only qualified persons should service system.

The installation and service of this unit is to be performed only by service personnel having appropriate training and experience necessary to be aware of hazards to which they are exposed in performing a task and of measures to minimize the danger to themselves or other persons.

Electrical shock hazards from the telecommunication network and AC mains are possible with this equipment. To minimize risk to service personnel and users, the ICS must be connected to an outlet with a third-wire ground. In addition, all unused slots must have filler faceplates installed and the system door must be locked in place at the completion of any servicing.

Service personnel must be alert to the possibility of high leakage currents becoming available on metal system surfaces during power line fault events near network lines. Risk points on the ICS are the Feature Cartridge, heatsink and power cord earth ground pin. These leakage currents normally safely flow to Protective Earth ground via the power cord. Therefore, it is mandatory that connection to an earthed outlet is performed first and removed last when cabling to the unit. Specifically, operations requiring the unit to be powered down must have the network connections (central office lines) removed first.



When upgrading, Call Log information will be lost.

When the system restarts, Call Log information is not saved. Be sure to notify users if a system restart is planned so any log information can be written down first.

Upgrading a 4x8 system

You can upgrade your 4x8 Feature Cartridge by entering a series of Software Keys you obtain from Northern Telecom. This will add an additional eight ports for Norstar telephones. See page 156 for more information.

Upgrading from 16 telephones to 24 telephones

The third slot in the ICS is used for an 8-port Expansion Cartridge only.

You cannot add the Expansion Cartridge to a 4x8 system which has not been upgraded.

1. Verify your system programming, and update the *Programming Record*.
2. Disconnect all central office and station line connections from the ICS.
3. Remove power from your system.
4. Insert the Expansion Cartridge according to the Installation chapter.



Risk of fire and electrical shock.

For continued protection against risk of fire and electrical shock, ensure all unpopulated cartridge slots are covered by filler faceplates prior to powering up. Immediately after powering up, connect the central office and station line connectors and close the door.

5. Power up the system.
6. Connect the central office and station line connectors.

7. Replace the door.



Downgrading cold starts the system.

If you downgrade the Compact ICS, you will lose all the system programming.

Glossary

A

AbsorbLength: A setting that determines how many of the digits in a destination code will not be dialed by the system. AbsorbLength is assigned under Destination codes in Services.

access code: Different sequences of characters used to gain access to these Norstar features: Line pools, Call park, external lines, Direct-Dial telephone, Auto DN, and DISA DN.

alarm code: A number that appears on the alarm telephone's display, informing you that the ICS has detected a fault in the system.

Alarm telephone: A telephone that is designated to receive reports of Norstar system problems. This function is usually assigned to a prime telephone, but this can be changed under Feature settings in System programming.

Analog Terminal Adapter (ATA): A device that permits the connection of analog telecommunication devices such as fax machines, answering machines, and single line telephones to the Norstar system. Programmed defaults for the ATA are automatically assigned by the Norstar system.

Answer button: A telephone button with an indicator that is used to monitor another telephone. The answer button indicates incoming calls destined for the other telephone. Someone working at a telephone with answer buttons (an attendant, for example) can receive all ringing and visual indication of incoming calls for other telephones, and answer those calls when necessary.

One telephone can have up to four Answer buttons. An Answer button is automatically assigned to a telephone when that telephone is assigned an Answer DN.

Answer DN: The internal or directory number (DN) of a telephone that is monitored by an Answer button. You can assign up to four Answer DNs to a telephone under Line Access in Terminals and Sets programming.

Auto Attendant: Gives your system the ability to answer calls with a recorded message and then prompt caller to leave a message, or enter a code or extension number for further access or services.

Autobumping:

Feature

A feature that determines what the system does with new Call Log items when your Call Log is full. When Autobumping is on, a new log entry causes the oldest entry to be deleted. If Autobumping is off, your Norstar system does not log calls when your log is full.

Autodial button: A memory button that, if programmed, provides one-touch dialing of external or internal numbers.

Autolog options:

Feature * 8 4

A feature that allows you to select the type of calls that are stored in your Call Log. You can choose to log calls that were not answered by anyone within the system, to log calls that were unanswered at this telephone but answered elsewhere in the system, to log all calls answered and not answered at this telephone, or to not have calls automatically logged.

Automatic Dial: A feature that allows you to dial without having to pick up the receiver or select a line. You must have a prime line to use Automatic Dial. Automatic Dial is assigned under Dialing options in Terminals and Sets programming.

Automatic Handsfree: A feature which automatically activates Handsfree operation when you make or answer a call. Automatic Handsfree is assigned under Handsfree in Terminals and Sets programming.

Automatic Hold: A feature that automatically places an active call on hold when you select another line. Automatic Hold (Full AutoHold) is assigned in Lines programming.

Automatic Privacy: See Privacy.

Automatic Daylight Saving Time: A feature that switches the system to standard or daylight saving time at pre-programmed dates. It is turned on or off under Daylight time in System programming.

Automatic Telephone Relocation:

A feature that lets a telephone retain its personal and system programming when it is plugged into a different Norstar modular jack. Automatic Telephone Relocation is enabled under Set relocation in System programming.

auxiliary ringer: A separate external telephone ringer or bell which can be programmed to ring when a line or a telephone rings. An auxiliary ringer may be programmed to ring only when the system is in a particular schedule. Programming of an auxiliary ringer is done in Services programming after the feature has been enabled under Capabilities in Terminals and Sets programming.

AWG: American wire gauge.

B

Background Music: A feature that lets you hear music from the speaker of your Norstar telephone. It is available only if a music source has been attached to the ICS and the feature has been enabled under Feature settings in System programming.

Basic password: A one- to six-digit password that prevents unauthorized access to the most commonly-used telephone settings. The Basic password can be assigned and changed in Passwords programming.

BERT: See bit error rate test.

bit error rate test: A test that checks the transmission of data across the voice and data channels between the ICS and any Norstar telephone.

busy lamp field (BLF): A device with a liquid crystal display (LCD) panel of indicators that shows the status of up to 24 telephones in the Norstar system. The BLF attaches to the M7310 telephone.

button caps: Interchangeable plastic caps that fit over the buttons of Norstar telephones. They are used to indicate the features programmed onto each programmable memory button. Button caps are either pre-printed or have clear windows that allow you to insert labels.

Button Inquiry:

Feature *

A feature that lets you check the function of each programmable button on your Norstar telephone.

C

Call Duration timer:

Feature 7

A feature that lets you see how long you spent on your last call or how long you have been on your present call.

Call Forward:

Feature 4

A feature that forwards all the calls arriving at your telephone to another telephone in your Norstar system. To have calls forwarded outside the system, use Line Redirection.

Call Forward No Answer: A feature that forwards all calls arriving at your telephone to another designated telephone in your Norstar system after a specific number of rings. Call Forward No Answer is assigned under Capabilities in Terminals and Sets programming.

Call Forward On Busy: A feature that forwards all calls at your telephone to another designated telephone if your telephone is busy. This feature is assigned under Capabilities in Terminals and Sets programming.

Call Forward Override: An automatic system feature that lets you call someone and ask them to stop forwarding their calls to you.

Call Information:

Feature 8 1

Call Information allows you to display information about incoming calls. For external calls, you can display the caller's name, telephone number and the line name. For an internal call, you can display the name of the caller and their internal number. You can obtain information about ringing, answered, or held calls.

Call Information Trunk Cartridge:

A Trunk Cartridge that allows you to connect loop start trunks with Call Information capability to the Norstar system.

Call Log:Feature

Enter your Call Log to view a record of incoming calls. The log could contain the following information for each call: sequence number in the Call Log, name and number of caller, long distance indication, indication if the call was answered, time and date of the call, number of repeated calls from the same source, and name of the line that the call came in on. See Autobumping, Autolog options, and Call Log for further information.

Call Park:Feature

With this feature you can place a call on hold so that someone can retrieve it from any other telephone in the Norstar system by selecting an internal line and entering a retrieval code. The retrieval code appears on the display of your telephone when you park the call. You can park up to nine calls on the system at one time.

Call Park Callback: See Callback.

Call Park prefix: The first digit of the retrieval code of a parked call. This digit cannot conflict with the first digit of any existing DNs, Line Pool access codes, the Direct-dial digit, or the external line access code. The default Call Park prefix digit is "1". It may be set to none, in which case Call Park is disabled. Call Park prefix is assigned under Access codes in System programming.

Call Pickup Directed:Feature

A feature that lets you answer a call ringing at any Norstar telephone by entering the internal number of that telephone before taking the call. Call Pickup Directed is enabled under Feature settings in System programming.

Call Pickup Group: See Pickup Group.

Call Queuing:Feature

If you have several calls waiting at your telephone, you can invoke the Call Queuing feature to answer them in order of priority. Priority is given to incoming calls, followed by callback and camped calls.

Callback: If you park, camp, or transfer a call to another telephone and it is not answered there, it will ring again at your telephone. How long the system will wait before Callback occurs is set under Feature settings in System programming.

Camp-on:Feature

A feature that lets you reroute a call to a telephone even if all the lines on that telephone are busy. To answer a camped call, use Call Queuing or select a line if the camped call appears on your telephone. Priority is given to queued calls over camped calls.

Camp timeout: The length of a delay before a camped call is returned to the telephone that camped the call. The length of delay is set under Feature settings in System programming.

CCR: See Custom Call Routing

Central answering position

(CAP): An M7324 telephone that has been designated as a CAP under CAP assignment in System programming. The CAP provides backup answering and can be used to monitor the telephones within a Norstar system.

Central answering position (CAP)

module: A module connected to an M7324 telephone and provides 48 additional buttons that can be used as autodial buttons or feature buttons. A maximum of two CAP modules can be connected to a single M7324 telephone.

Class of Service (COS): The set of Norstar features and lines available to the user for a call. The Class of Service for a call is determined by the restriction filters and remote access packages assigned to the telephone in Lines programming. The Class of Service for a call can be changed by entering a six-digit Class of Service password. (Internal users cannot change their access to features with a COS password, only their restriction filters.) Class of Service and Class of Service passwords are assigned in Passwords programming. See Remote Access.

Class of Service password:

Feature

A six-digit code that lets you switch from your current Class of Service to one that lets you dial numbers prohibited by your current Class of Service.

Cold start - Any time the Norstar system undergoes the startup process

() is a cold start. This can happen because you have entered the feature code, or after a major event (such as an extended power failure). All system programming is lost in a cold start.

Conference:

Feature

A feature that allows you to establish a three-person call at your Norstar telephone.

Contrast Adjustment:

Feature

Allows you to set the contrast level of your telephone display.

control telephone: A control telephone can place the lines for which it has responsibility in or out of a Service Mode. The direct-dial telephone is a control telephone for directing calls to the extra direct-dial telephone. A telephone is made a control telephone and has lines assigned to it under Common settings in Services programming.

COS: See Class of Service.

cursor: A short horizontal line that appears on the Norstar telephone display to indicate that characters can be entered using the dial pad.

Custom Call Routing: Answering and transferring calls can be taken over by CCR. The system answers the call and plays a recorded greeting. Callers are given options to route their call by pressing a digit.

D

Data terminal: A device such as a modem that can be used to transfer data instead of sound over a telephone network. You cannot use Norstar programming to set up such devices. See the documentation that accompanies the device.

Date: See Show Time or Time and Date.

defaults: The settings for all Norstar features when the system is first installed. Settings are changed from their defaults in programming. In this manual, default settings are shown in **bold** text.

Delayed Ring Transfer (DRT) to prime: After a specified number of rings, this feature transfers an unanswered call on an external line, to the prime telephone associated with that line. This feature is activated under Feature settings in System programming.

Destination code: A two- to seven-digit number that the system interprets and then translates into the digits that you want dialed out. Both the code and its associated dialed digits are assigned under Routing service in Services programming.

Dialing restriction: See Restriction filter.

Dialing Modes:

Feature * 8 2

This feature allows you to set the dialing mode of your telephone. Norstar supports three dialing modes: Automatic Dial, Pre-Dial, and Standard Dial. All three modes support on-hook dialing (meaning you can dial a call without picking up the receiver). The special features of the Automatic and Pre-Dial modes are available only when you dial on-hook.

direct-dial: A feature that lets you dial a designated telephone in your Norstar system with a single digit. Each telephone in the system can be assigned to the direct-dial telephone. The direct-dial telephone is established under Direct-dial in System programming. Telephones are assigned to the direct-dial telephone under Capabilities in Terminals and Sets programming.

Direct-dial #: A digit used system-wide to call the Direct-dial telephone. The digit is assigned under Access codes in System programming.

Direct-dial number: The digit used to call the direct-dial telephone.

Direct Inward System Access (DISA): The feature that lets remote users dial directly into the Norstar system and use Norstar features. Callers will hear stuttered dial tone and will be required to enter a Class of Service password to gain access to the system. See Remote Access.

Directed Pickup: See Call Pickup Directed.

Directory number (DN): A unique number that is automatically assigned to each telephone or data terminal. The DN, also referred to as an internal number, is often used to identify a telephone when settings are assigned during programming. Default DN assignments start at 21.

DISA DN: The received number assigned to the Norstar direct inward system access facility. If a caller dials a number that is assigned to the DISA DN, the caller hears stuttered dial tone and must enter a Class of Service password. Once the password is accepted, the caller hears system dial tone and can use Remote Access features. See Remote Access.

Disconnect Supervision: A setting that enables the Norstar system to detect if an external caller hangs up. Once an external caller hangs up, the Norstar system can disconnect its line. Disconnect Supervision is enabled under Trunk/Line data in Lines programming.

Display: A liquid crystal display (LCD) on the Norstar telephone that guides you through feature operation and programming.

Display button: The Norstar M7310 telephone and M7324 telephone are each equipped with three buttons located directly beneath the display. During feature operation or programming, some or all of these buttons may be used to provide further options. If an option is available, it is shown in the bottom row of the two row display, directly above the corresponding display button. Display buttons are represented in this manual as underlined capital, such as OK.

DN: See Directory number.

Do Not Disturb (DND):

Feature

A feature that stops calls from ringing at your telephone. Only Priority Calls will ring at your telephone. A line button will flash when you receive a call, but the call will not ring.

DTMF: See Dual tone multifrequency.

Dual tone multifrequency: Two distinct telephone signaling tones used for dialing.

E

Emergency telephone: A single-line telephone (also referred to as a 500/2500 telephone) that becomes active when there is no power to the Key Service Unit.

Evening schedule: See Schedules, and Services.

Event message: Event messages are stored in the system log and displayed during a Maintenance session. They record a variety of events and activities in the Norstar system.

Exceptions: See Overrides.

Expansion Cartridge: A cartridge that allows you to connect an additional eight telephones to your Norstar system.

External call: A call to a destination outside the Norstar system.

External Call Forward: See Line Redirection.

External code: The number you dial to get an external line. By default it is 9, but this can be changed under Access codes in System programming. You do not always need an external code. It is primarily to support the M7100 telephone and single line telephones using an Analog Terminal Adapter.

External line: A line on your Norstar telephone used for making calls to destinations outside the Norstar system.

External music source: See Music source.

External paging: A feature you can use to make voice announcements over an externally-mounted loudspeaker connected to the Key Service Unit. The external speaker is not a Norstar component and must be supplied by the customer.

F

Feature button: Many Norstar features are invoked by pressing the Feature button followed by a feature code. The feature button is also used to exit a feature.

Feature Cartridge: A replaceable cartridge containing the Norstar features. The Feature Cartridge is inserted into the Key Service Unit.

Feature code: A number that is used to activate a particular feature.

Feature programming:

Feature *

Allows you to program a feature code onto a memory button.

Forward: See Call Forward.

Full Autohold (on idle line): When this feature is on, if you select an available line, and then do something that selects another line, the first line is put on hold. Full Autohold is enabled under Trunk/Line data in Lines programming.

Full Handsfree: See Handsfree.

G

Group Listening:

Feature 8 0 2

A feature that allows you to have others in your office hear a caller through your phone's speaker. The caller hears you only when you speak into the receiver and cannot hear other people in the office. You can cancel Group Listen for the current call. Group Listen is cancelled automatically when you hang up the Group Listen call.

H

Handsfree:

Handsfree Mute

A feature you can use to make calls without using the telephone receiver. Full Handsfree is activated under Capabilities in Terminals and Sets programming. When it is activated, a Handsfree/Mute button is automatically assigned to the telephone.

Handsfree (HF) Answerback:

When activated, this feature automatically turns on the microphone at a telephone receiving a Voice Call so that the person receiving the call can respond without lifting the receiver. It is activated under Capabilities in Terminals and Sets programming.

Handsfree/Mute button: See Handsfree.

Hardware: A section in programming that shows what equipment has been installed in the Key Service Unit. This section is accessed by the installer.

Headset: A head-mounted or ear-mounted telephone receiver that is used instead of the hand-held receiver. Headsets are not Norstar components and must be supplied by the customer.

Held (Line) Reminder: A Norstar telephone rings and displays the message **On hold: LINENAM** when an external call has been placed on hold for a certain period of time. The Held Line Reminder feature and Remind delay are set under Feature settings in System programming.

HF Answerback: See Handsfree Answerback.

Hold button:

Hold

This button is used to suspend calls so that the person using the telephone can perform another task without disconnecting the caller.

Hookswitch Flash: See Link time.

Host system signaling: (Also referred to as end-to-end signaling.) Norstar telephones can access a remote system or dial a number on an alternate carrier by means of host feature activation, such as Link, Pause and Run/Stop.

Hotline: This feature automatically calls a pre-assigned number when the telephone's receiver is lifted or the Handsfree/Mute button is pressed. A Hotline number can be an internal or external number. Hotline is assigned under Capabilities in Terminals and Sets programming.

I

I/C: An abbreviation of intercom.

ICS (integrated communication system): The central hardware component in the Norstar system. The ICS has its own processor and memory, and provides a physical point of connection for the various types of devices, telephones, and cartridges used in Norstar. The ICS can function on its own as a basic system (with eight Norstar telephones and four external lines), or be expanded to a total of 24 telephones and 8 lines.

I-ATA: See Internal Analog Terminal Adapter.

Incoming line group: A group of lines used for incoming calls. Incoming line groups provide a way of giving a telephone access to several incoming lines without taking up many line buttons. A line is assigned to be part of an incoming line group under Trunk/Line data in Lines programming.

Installer password: A one-to six-digit password that prevents unauthorized access to programming. The Installer password can be assigned and changed in Passwords programming.

internal analog terminal adapter (I-ATA): A device built into the Norstar Key Service Unit, which permits the connection of analog telecommunication devices such as fax machines, answering machines, and single line telephones. The system has one I-ATA.

integrated communication system): See ICS.

Intercom button: A button that provides access to internal lines used for calls within a Norstar system and access to external lines through a line pool or external code. A telephone may be assigned zero to eight Intercom buttons. This is done under Line access in Terminals and Sets programming.

Intercom keys: See Intercom button.

Internal line: A line on your telephone dedicated to making calls to destinations inside your Norstar system. An internal line may still connect you with an external caller if you use it to access a line pool or to pick up a call using Norstar call handling features such as Call Park or Call Pickup Directed.

Internal number: A number (also referred to as a Directory Number or DN) that identifies a Norstar telephone or device.

Internal user: Someone using a Norstar telephone within a Norstar system.

K

key service unit (KSU): See ICS (integrated communication system).

L

Last Number Redial:

Feature 5

A feature that allows you to redial the last external number you dialed.

Least cost routing: See Routing service.

Line: The complete path of a voice or data connection between one telephone (or other device) and another.

Lines: A programming section that lets you assign settings to each trunk and external line. Lines programming can be done by an installer or a system coordinator plus. A system coordinator can program the name of a line.

Line restriction: See Restriction filter.

Line number: A number that identifies an external line. The total number of lines depends on how many Trunk Cartridges are installed.

Line Pool:

Feature 6 4

A group of lines used for making external calls. Line pools provide an efficient way of giving a telephone access to external lines without taking up many line buttons. A line is assigned to be part of a line pool under Trunk/Line data in Lines programming.

Line Redirection:Feature

A feature that allows you to redirect all calls on an incoming line to a destination outside the Norstar system. Once a line is redirected it cannot be answered within the Norstar system. The system may be set up to give a brief ring when a call comes in on a redirected line, under Capabilities in Terminals and Sets programming.

This feature differs from Call Forward in two ways. It redirects only external calls (not internal calls) and it redirects calls to destinations outside the system. Call forward redirects calls only to destinations inside the Norstar system. See Call Forward.

Link:Feature

If your Norstar system is connected to a Private Branch Exchange (PBX), you can use a Link signal to access special features. The Link signal can also be included as part of a longer stored sequence on an External Autodial button or in a Speed Dial code. The Link symbol () uses two of the 24 spaces in a dialing sequence.

Long Tones:Feature

A feature that lets you control the length of a tone so that you can signal devices such as fax or answering machines which require tones longer than the standard 120 milliseconds.

Loop Start Trunk Cartridge: The Trunk Cartridge that allows you to connect loop start trunks to the Norstar system.

Lunch schedule: See Schedules, and Services.

M

M7100 telephone: A telephone with a single line display and one programmable memory button without an indicator.

M7208 telephone: A telephone with a single-line display and eight programmable memory buttons with indicators.

M7310 telephone: A telephone that has a two-line display, three display buttons, 10 programmable memory buttons with indicators, and 12 dual memory programmable buttons without indicators. An M7310 can be equipped with a Busy Lamp Field.

M7324 telephone: A telephone with a two-line display, three display buttons, and 24 programmable memory buttons with indicators. An M7324 telephone can be equipped with one or two CAP modules.

Maintenance: A type of programming that is used to diagnose and repair problems in the Norstar system. Maintenance is accessed by an installer or a system coordinator plus.

Memory buttons: Buttons that can be programmed to dial frequently used features or numbers automatically. See M7100, M7208, M7310, and M7324 telephone entries for their exact memory button configurations.

Message: A feature that allows you to send a message to another Norstar user. The Message feature also lets you know if you have any messages waiting and maintains a Message Waiting List to keep a record of your internal messages and your (external) voice mail messages.

Module: A component of the Norstar 0X16 Key Service Unit.

Module status: A heading in Maintenance programming that shows what types of Trunk Cartridges are connected and whether they're busy, disabled, or malfunctioning.

Move Line buttons:

Feature * 8 1

A feature that allows you to move external lines to different buttons on your telephone.

Music source: A radio or other source of music can be connected to the Key Service Unit to provide music for the Music on Hold and Background Music features. A music source is not part of the Norstar system and must be supplied by the customer.

N

Names: Names can be assigned to System Speed Dial numbers, external lines, telephones, and service schedules. This is done in programming. You can use up to sixteen characters to name a System Speed Dial number, and seven characters to name a telephone, line, or schedule. If a Name has not been assigned, the line number or DN will appear on the display instead of a name.

Night schedule: See Schedules, and Services.

O

On hold: A setting that controls whether external callers hear music, periodic tones, or silence when they are placed on hold. It is assigned under Feature settings in System programming.

OPX: Off premises extension.

Overlay: See Programming overlay.

Overflow: A setting in Routing Service that allows users to decide what path an outgoing call will take if all the lines used in a particular route are in use when the call is made.

Overrides: One component of a restriction filter. Overrides are numbers you can dial even if they are forbidden by a more general restriction. See Restrictions.

P

Page:

Feature 6 0

A feature you can use to make announcements over the Norstar system. You can make page announcements over the telephone speakers and/or external speakers.

Page Timeout: A setting that controls how long a Page Announcement can last. It can be assigned under Feature settings in System programming.

Page zone: An area in the office that receives internal page announcements independently of the rest of the office. Each page zone is identified by a number. Telephones are assigned to page zones under Capabilities in Terminals and Sets programming.

Park prefix: See Call park prefix.

Park timeout: The time before an unanswered parked call is routed back to the telephone that parked it. Park timeout is under Feature settings in System programming. See Call Park.

Password: A password is a specific sequence of digits that you enter to gain access to Norstar programming, to override restriction filters, or to use remote access with DISA.

Passwords: A programming section that lets you assign or change COS passwords, Call log passwords, or any of the programming passwords. Once you access the Passwords section, you can only modify the passwords for your level of programming.

Pause:

Feature

A feature that enters a 1.5 second delay in a dialing sequence on an external line. This is often required for signaling remote devices, such as answering machines, or when reaching through to PBX features or host systems. The Pause symbol (⏸) uses one of the 24 spaces in a dialing sequence. For pulse dialing, inserts a 1.5 second pause into the dialing sequence.

PBX: private branch exchange.

Pickup Group:

Feature

A telephone can be placed into one of nine call pickup groups. A call ringing at a telephone within a pickup group can be picked up at any other telephone within the same pickup group. A telephone is assigned to a pickup group under Capabilities in Terminals and Sets programming.

Pool: See Line pool.

Pre-dial: A feature that allows you to enter a number and check it on your telephone display before it is actually dialed. If the number is incorrect, you can edit it. The number is dialed only when you pick up the receiver or select a line.

Prime line: The line on your telephone that is automatically selected when you lift the receiver, press the Handsfree/Mute button or use an external dialing feature. A Prime line is assigned to a telephone under Line access in Terminals and Sets programming.

Prime Set (prime telephone): A telephone that provides backup answering for incoming calls on external lines. The prime telephone for a line will ring for any unanswered calls on that line. A prime telephone is assigned to a line under Trunk/Line data in Lines programming.

Priority Call:

Feature

If you get a busy signal when you call someone in your office, you can interrupt them for an urgent call. This feature is enabled for a telephone under Capabilities in Terminals and Sets programming.

Privacy: This feature determines whether a Norstar user may select a line in use at another telephone and join an established call. Privacy is enabled under Trunk/Line data in Lines programming, but can be turned on and off by users during individual calls.

Private line: See Private to.

Private network: A telephone network consisting of owned or leased telephone lines used to connect different offices of an organization independently of the public network.

Private to: Lets you select the telephone that will use the line exclusively. The line cannot appear on any other telephone, except the prime telephone for that line. Private lines cannot be placed into line pools. Private lines are assigned under Trunk/Line data in Lines programming.

Programmed release:

Feature * 8 9

A feature that performs the function of the button in a programmed dialing sequence.

Programming: Setting the way the Norstar system will work. Programming includes system-wide settings and individual telephone and line settings.

Programming overlay: A paper template that is placed over the top four memory buttons with indicators on the M7310 or M7324 telephone during programming. The overlay labels indicate the special function that each of the four buttons takes on in programming.

Public line: An external line that can be assigned to any telephone and to many telephones. A line is assigned as Public under Trunk/Line data in Lines programming.

Public network: The regular telephone network that connects most homes and businesses.

Pulse/tone dialing: An external line setting for pulse or tone dialing. Pulse is the traditional method of dialing used by rotary-dial or push-button single-line telephones. Tone dialing allows telephones to communicate with other devices such as answering machines. Tone dialing is required to access the features that PBX systems may offer or to use another Norstar system remotely.

R

Recall: See Link time.

Receiver: The handset of a telephone.

receiver card: An abbreviated list of Norstar feature codes that is stored under the telephone receiver. The card is found on a perforated sheet that comes with a Norstar telephone.

Remind delay: A feature that causes a telephone to beep and display the message
On hold: LINENAM when a call has been on hold for a programmable period of time. This period is the Remind delay.

Remote access: The ability to dial into a Norstar system from outside the system and make use of selected Norstar features. The lines, features, and dialing capabilities available to a remote user are determined by the Class of Service. If the remote access line is answered with DISA, the user must enter a Class of Service password to gain access to the Norstar system's features.

Remote access dial restriction:
See Remote restriction.

Remote capability: A subset of Norstar features that are available to users connected through remote access.

Remote restriction: A restriction filter applied to a line in order to control which digits can be dialed during an incoming remote access call. It is the equivalent of a set restriction for a remote user.

Remote monitoring: A feature that lets an off-site technician with a PC call in and troubleshoot your system through the built-in modem.

Remote paging: This feature allows remote users to use the Norstar paging feature. Access to this feature is governed by the Class of Service for the call. See Remote Access and Class of Service.

remote user: Someone who calls into a Norstar system from a telephone outside that system and uses Norstar features or lines. See Remote Access.

Restriction filter: Through a combination of restrictions and overrides, restriction filters prevent certain telephone numbers or feature codes from being dialed. Restriction filters can be applied to lines, sets, specific lines on a set, and to Class of Service passwords. The Norstar system can handle up to 100 restriction filters.

Restriction service: A Services section that allows you to assign alternate restriction filters to lines, telephones, lines on a particular telephone, and alternate remote filters to lines at specified times of the day and on specified days.

restrictions: One component of a Restriction filter. Restrictions are numbers you cannot dial when that filter is in effect. See also Overrides.

Ring Again:

Feature

A feature that can be used when you can't get through to someone on your Norstar system because their telephone is busy or there is no answer. Ring Again instructs the Norstar system to inform you when they hang up or next use their telephone.

ring group: A setting under Services that lets you assign a number of different telephones to ring during one of the schedules. Up to 20 ring groups can be programmed by an installer or a system coordinator plus.

ring type:

Feature

A feature that allows you to select one of four distinctive rings for your telephone.

ring volume:Feature * 8 0

A feature that allows you to set the volume at which your telephone rings.

ringing service: A Services section that allows you to make additional telephones ring at specified times of the day and on specified days.

RIIs button: Ends a call in the same way that hanging up the receiver does. The Release button may also be used to end programming, Maintenance sessions, and feature operations.

routing: See Routing service.

Routing service: A programming section that allows outgoing calls to be directed automatically based on the numbers a caller dials. For Norstar systems linked in a network, routing can create a transparent or coordinated dialing plan. It can also be used to direct calls to the least expensive lines according to a Services schedule (sometimes called least cost routing).

Run/Stop:Feature * 9

A feature that creates a break point in a programmed external dialing sequence. When you press a programmed key, the system dials the number up to the run/stop. When you press it again, the system dials the digits following the run/stop.

S

SAPS: See station auxiliary power supply.

Saved Number Redial:Feature 6 7

A feature that allows you to save the number of the external call you are on (providing you dialed the call) so that you can call it again later.

Schedules: Any of six different sets of services that can be applied to your Norstar system. A schedule can be activated manually from a control telephone or activated automatically at specified times. See also Services.

Selective line redirection: See Line Redirection.

Service Modes: See Services.

Services: A programming section that lets you assign which telephones ring, which restrictions apply, and which call routing is used during any of six different schedules. There are three services: Ringing service, Restriction service and Routing service, all found in Services programming.

Set: A telephone.

Set Copy: A programming section that allows you to copy programmable settings from one telephone to another of the same type. Set Copy provides two options: duplicating System Data and User Data, or duplicating System Data only. Set Copy does not provide the same copy capability as COPY, which is more selective of the settings that can be duplicated.

Set filter: See Restriction filter.

Set lock (telephone lock): This feature allows you to limit the number of features that may be used or programmed at a telephone. Full set lock allows very few changes or features, Partial set lock allows some changes and features, and No set lock allows any change to be made and any feature to be used. Set lock is assigned under Capabilities in Terminals and Sets programming.

Set Relocation: See Automatic Telephone Relocation.

Shift button: A small triangular button beside the dual memory buttons on the upper half of the M7310 telephone. You press the shift button to store or access features on the top half of the dual memory buttons.

Show Time:

Feature

While on a call, accessing this feature lets you see the current date and time on the Norstar telephone display.

Software Keys: A programming section used to enable the optional Remote monitoring feature. One setting provides a System ID, which an installer or system coordinator plus then uses to request three password keys from the Nortel Customer Response Center. Once these three passwords have been entered, the system will permit Remote monitoring.

Startup programming: When a Norstar system is first installed and powered up, Startup programming must be performed before any programming can be done. Startup initializes the system programming to defaults.

Station: An individual telephone or other Norstar device.

Station Auxiliary Power Supply (SAPS): A device which provides power to a Norstar telephone that is connected more than 300 m (975 ft.) and less than 1200 m (3900 ft.) from the ICS, or to a CAP module.

Station set test:

Feature

A series of diagnostic tests for these components of a Norstar telephone: display, buttons, handset, speaker, and power.

System Answer: This feature simplifies answering calls by ensuring all calls are answered within a pre-set number of rings. Unanswered calls are monitored and answered by a pre-recorded greeting. Callers can dial an internal number or else the call is put on hold until it can be retrieved.

System coordinator: The person responsible for customizing the Norstar system through programming and for helping co-workers use the Norstar system.

System coordinator password: A one- to six-digit password that prevents unauthorized access to programming. The System coordinator password can be assigned and changed in Passwords programming.

System coordinator plus: A system coordinator who also performs technical and maintenance functions for the Norstar system.

System coordinator plus

password: A one- to six-digit password that prevents unauthorized access to programming. The System coordinator plus password can be assigned and changed in Passwords programming.

System coordinator plus

programming: A combination of common and installer programming settings. Press * * to access System coordinator plus programming.

System coordinator

programming: The programming settings that are most commonly changed once the Norstar system has been installed. Press * * to access System coordinator programming.

System Data: An option in the Set Copy function. System Data refers to the programmable system settings that apply to all telephones and lines.

System programming: A

programming section that lets you assign and maintain certain settings on the Norstar system. System programming is performed by an installer or system coordinator plus.

System speed dial code: A two-digit code (01 to 70) that can be programmed to dial a telephone number up to 24 digits long. System speed dial codes are programmed for the entire Norstar system under the System Speed programming heading.

System Startup: See Startup programming.

System Startup access code: To begin System Startup, press

* * . An Installer password is

required before Startup programming can begin.

T

Telco features: A programming section that lets you specify the external telephone numbers that are dialed by the Message feature to retrieve voice messages, or to set up CLASS (CMS) services for lines and sets. Telco features are accessed by an installer or a system coordinator plus.

Terminals and Sets: A

programming section that lets you assign and change settings that apply to the telephones and other devices connected to the Norstar system. Terminals and Sets programming is performed by an installer or a system coordinator.

Time and date: A programming section that lets you manually change time or date. The time and date can also be changed by pressing * * and entering the Basic password or one of the programming passwords.

Transfer:

A feature that lets you redirect a call to another telephone in your Norstar system, over a network or outside your Norstar system.

Transfer Callback: If a transferred call is not answered after a specific number of rings, the call will return to the telephone that made the transfer. The number of rings is assigned under Feature settings in System programming. Transfer Callback does not apply to calls transferred externally.

Trunk: The physical connection between the Norstar system and the outside world using either the public telephone system or a private network.

Trunk Answer:

Feature

A feature you can use to answer a call on any line that has an active Ringing service schedule, even if that line does not appear on your telephone. Trunk Answer is enabled under each schedule in Services programming.

U

Unsupervised line: A line for which disconnect supervision is disabled. If an external caller hangs up, the Norstar system does not detect the disconnection and does not hang up its line. See Disconnect Supervision.

User Data: User Data is an option in the Set Copy feature. User Data refers to the personal settings that are unique to an individual telephone, and are not programmed for the system. User Data is programmed at each telephone. These settings, for example, include User Speed Dial and the assignment of programmable memory buttons.

User Filter: See Restriction filter.

User Preferences: a programming section that lets you assign autodialers, user speed dial codes, display contrast, and other settings to a specific telephone or person. You do not have to program these settings at the person's telephone. User preferences are assigned in Terminals and Sets programming.

User Speed Dial:

Feature

Two-digit codes (71-94) can be programmed to dial external telephone numbers. User Speed Dial numbers are programmed for each telephone, and can be used only at the telephone on which they are programmed.

V

Voice Call:

Feature

A feature you can use to make an announcement or begin a conversation through the speaker of another telephone in the Norstar system. The telephone you call will not ring. Instead, the person you call will hear a beep and then your voice. Their telephone will beep periodically to remind them that their microphone is open.

Voice Call deny:

Feature

A feature that prevents your telephone from receiving Voice Calls.

Voice message center: If you have subscribed to Call Display services you can receive visual Voice Message Waiting Indication, providing your telephone has a display. If you have Voice Message Waiting Indication, you can program the telephone numbers required to access up to five different Voice Message Centers. You can also program which of the five Centers is to be accessed by each specific line.

W

Wait for dial tone:

Feature 8 0 4

A feature that causes of sequence of numbers to pause until dial tone is present on the line before continuing to dial. The Wait for dial tone symbol (**WF**) uses two of the 24 spaces in a dialing sequence.

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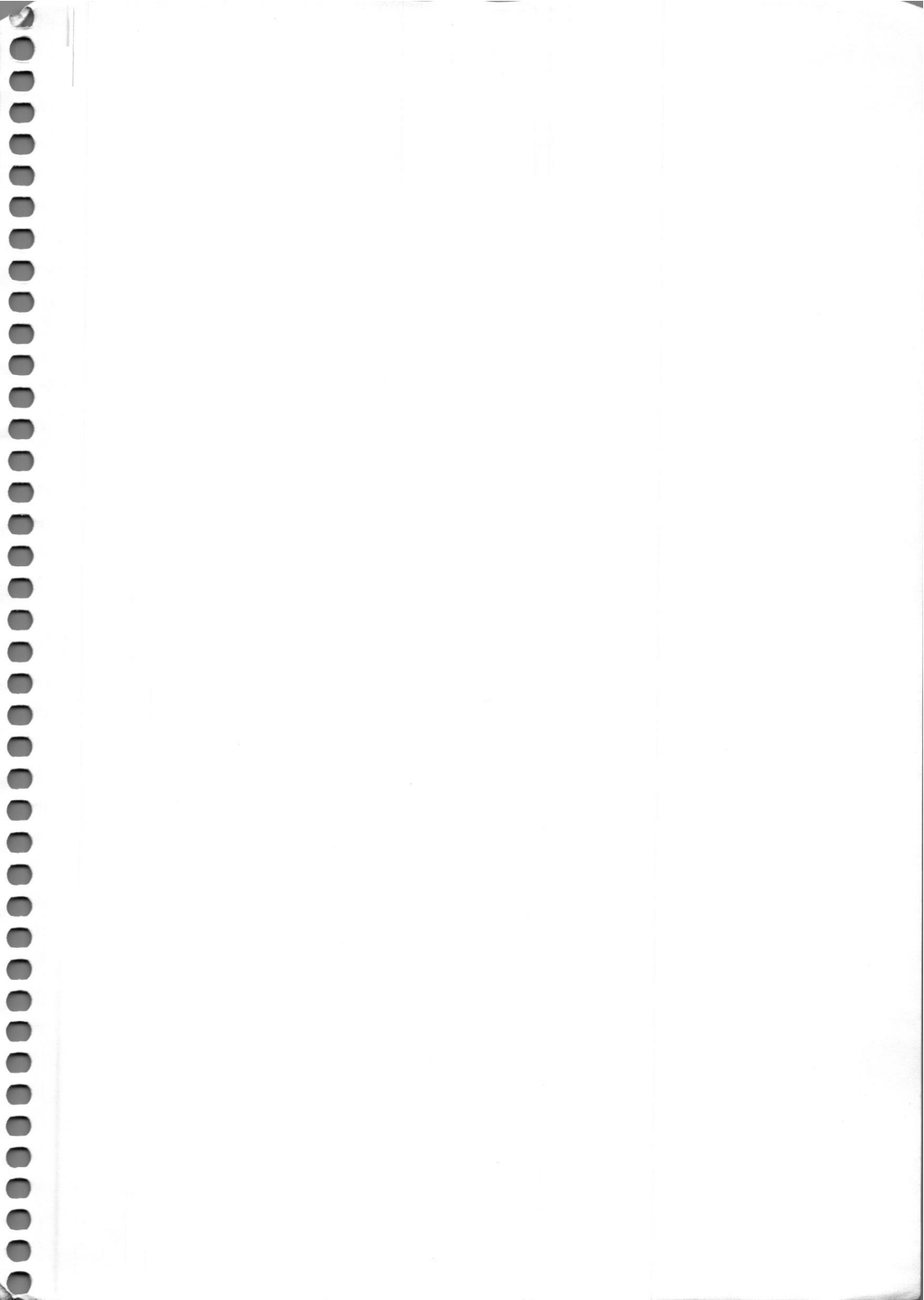
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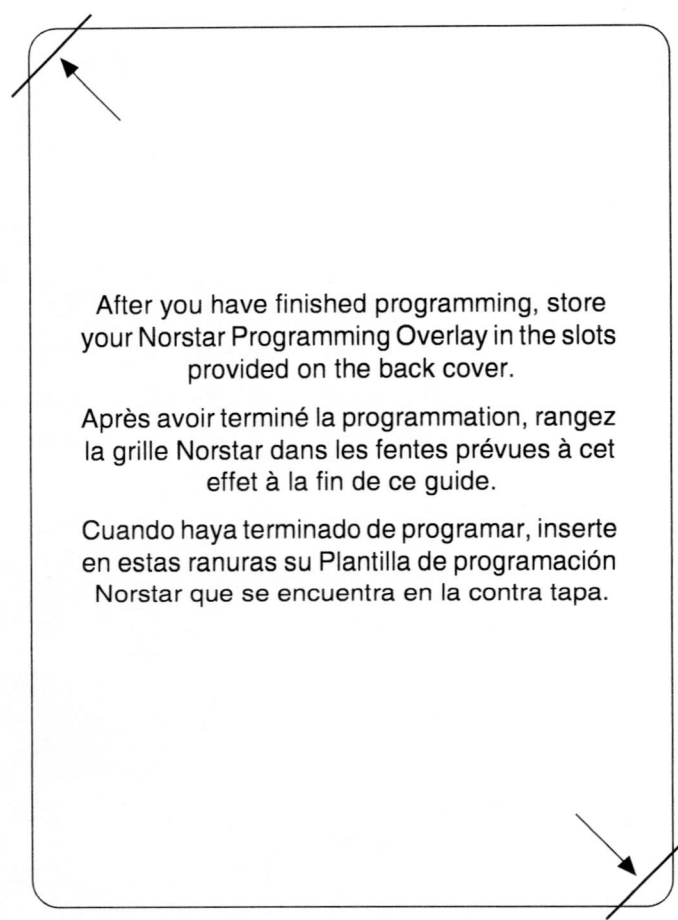
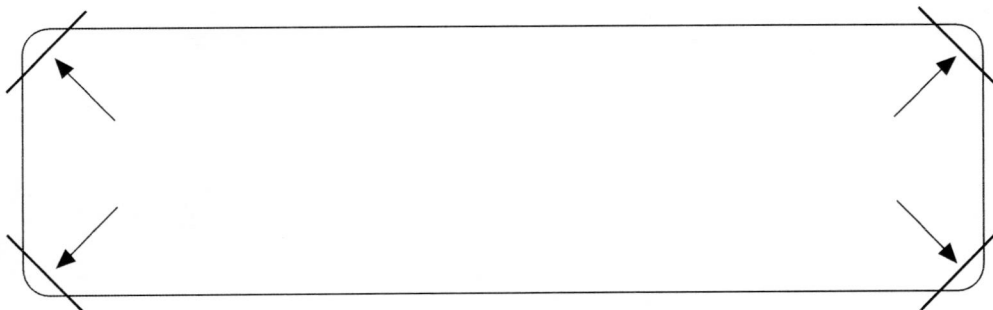
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After you have finished programming, store your Norstar Programming Overlay in the slots provided on the back cover.

Après avoir terminé la programmation, rangez la grille Norstar dans les fentes prévues à cet effet à la fin de ce guide.

Cuando haya terminado de programar, inserte en estas ranuras su Plantilla de programación Norstar que se encuentra en la contra tapa.

